Volume XXXIV.
Number 5.

FEBRUARY, 1908.

$2.00 per year.
$3.00 with Directory.

1868 # TEXTILE WORLD RECORD 1908

Special Features

Profits and Losses from Tare under "Cif and Six."

Industries Move to England to Save Their Patents.

Humidity in Textile Mills.

Experiences in a Knitting Mill.

Weaving Turkish Towels.

Markets for American Mills.

Woolen and Worsted Warp Preparation.

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LORD & NAGLE COMPANY · BOSTON, MASS.

JOHN JEPSON BOSTON

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The Textile-Finishing Machinery Co.

HOWARD BUILDING

STAIRWAYS, 83 EXCHANGE PLACE [ENTRANCES] ELEVATOR, 171 WESTMINSTER ST.

PROVIDENCE, R. I.

Singeing Machines,

Boiling Kiers,

Washers, Squeezers,

Chemic and Sour

Rusden Patent

Continuous Chainless

Steamer,

Aniline Agers,

Dyeing Machines,

Open Soapers,

Blanket Washers,

Color Kettles,

Horizontal or Vertical Drying Machines, with Copper or Tinned Iron Cylinders,

Automatic Tentering Machines,

Water and Starch Mangles,

Dampening Machines,

Dyeing Machines for Chain Warps.

BUILDERS OF ALL KINDS OF

MACHINERY

FOR

BLEACHING
DYEING
DRYING

AND

FINISHING

Calenders for Rolling, Glazing, Chasing and Embossing, also Calenders for Moire Finish.

Sole Manufacturers of Patented Flexible Cloth Expander for Cylinder Drying Machines, Calenders, Mangles, &c.

Patent Combination Rolls Made of Cotton and Husk, especially adapted for Soft Finish, Unequalled for Elasticity and Durability.

Cotton, Paper, Husk, Chilled Iron, Brass and Rubber Rolls, Electro-deposited Copper Rolls for all Purposes.

Padding and Drying Machines for Shade Cloths.

Single and Double Cylinder Engines.

Hydraulic Presses and Pumps.

Mercerizing Machinery for Piece Goods and Yarn in the Warp or Chain

ALL KINDS OF OUTFITS FOR BLEACHING THREAD AND SOFT TWISTED YARN.
BLEACHING MACHINERY FOR YARNS IN THE WARP OR CHAIN.

Estimates, Drawings and full particulars of complete plants furnished on application.

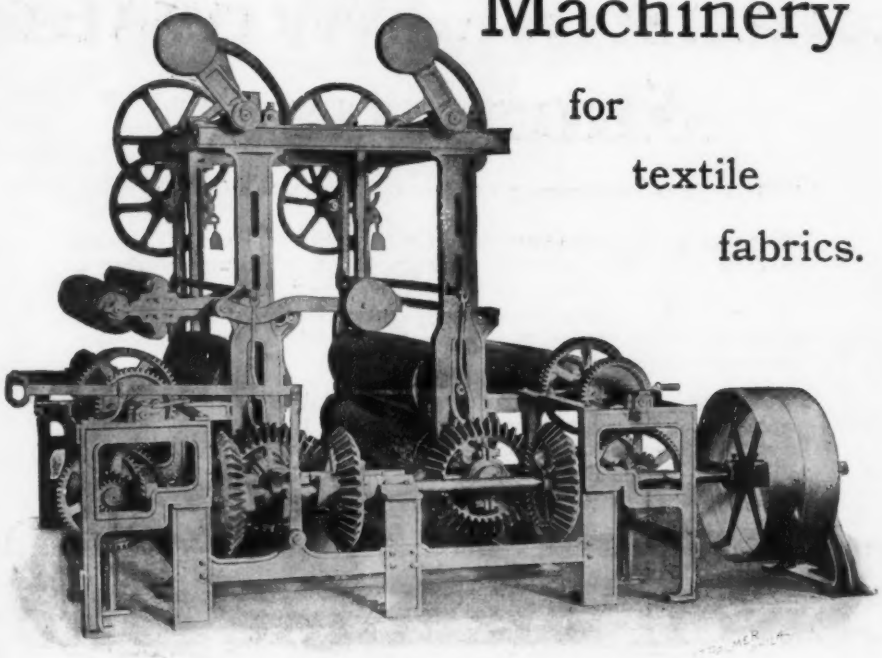
Southern Agent, STUART W. CRAMER, Charlotte, N. C., Equitable Building, Atlanta, Ga.

H. W. BUTTERWORTH & SONS CO.

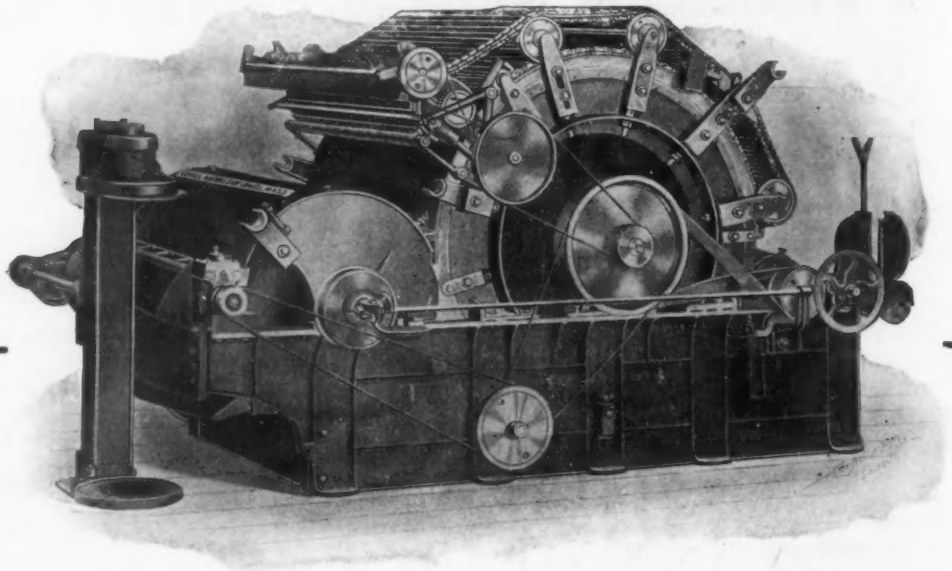
PHILADELPHIA, PA.

Providence Office,
Room 417, Industrial Trust Bldg.

Bleaching,
Dyeing,
Drying,
Finishing,
Machinery
for
textile
fabrics.



DOUBLE CRABBING MACHINE.



Cotton and Worsted Machinery

With Modifications to Suit Any Class of Work.

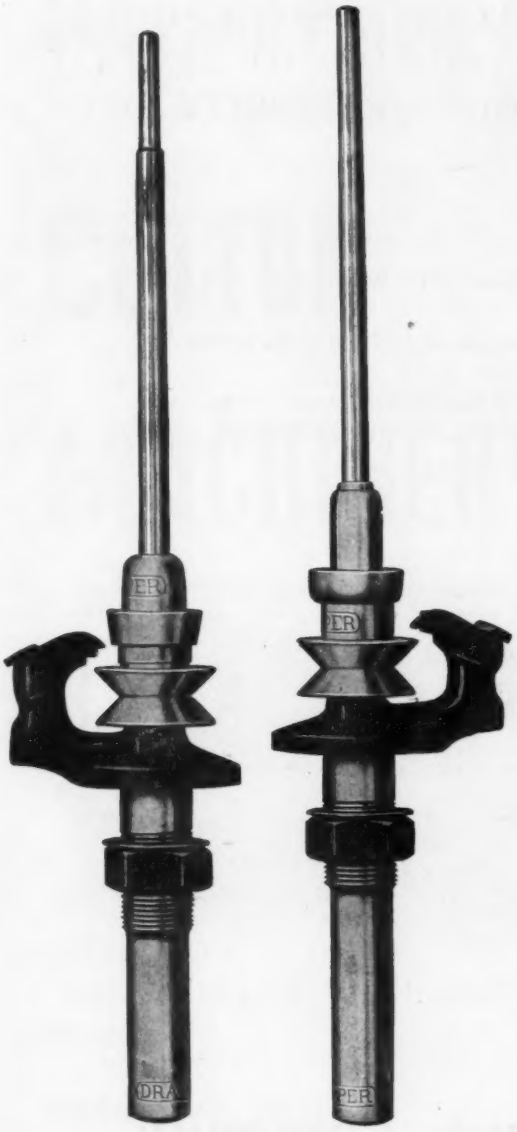
Cotton Machinery: Cards, Railway Heads, Drawing Frames, Fly Frames, Speeders, Ring Spinning Frames, Twisters, Spoolers, Reels, Warpers, Slashers, Winders, Looms, Shearing Machines, Balling Machines, Folders, Stamping Machines, Sewing Machines, Size Pumps, Size Kettles, Drawing-in Frames, Baling Presses, Indigo Grinders.

Worsted Machinery: Spinning Frames with caps, rings or flyers, Dandy Rovers and Reducers, Cone Second Finishers, Reducers and Rovers, Gill Boxes for Drawing, Preparing and Finishing, Weigh Boxes and Drawing Boxes, Cap Trap, Flyer and Ring Twisters.

Plans, Specifications and Estimates furnished upon application.

Lowell Machine Shop

LOWELL, MASS.



Two New
Large Size
Spinning Spindles.

We make

Draper,
Whitin,
McMullan

and other
types of

Spindles;

also

Northrop Looms,

Twisters,
Warpers,
Spoolers,
Reels,

Banding Machines,

etc., etc.

Draper Company,
HOPEDALE,
MASS.

THE EMPHATIC SUCCESS OF OUR "IDEAL" AUTOMATIC LOOM IS DUE TO SEVERAL SALIENT POINTS OF SUPERIORITY OVER ALL COMPETITORS:

1st. The ease and smoothness with which they start up.

2d. The acknowledged superiority of the cloth woven.

3d. Simple and thoroughly mechanical construction, assuring freedom from the constant breakage and expensive repairs attending other automatic looms.

4th. No special bobbins, shuttles or other expensive parts.

5th. Ability to use cop or bobbin filling interchangeably.

6th. Superiority of warp stop motion which does not break or fray the softest yarn.

7th. Of the thousands in operation not a single bobbin or crank shaft broken.

IN PROOF OF CLAIMS WE POINT TO THOSE MILLS FORMERLY USING OUR COMPETITORS' LOOMS THAT ARE NOW USING OURS.

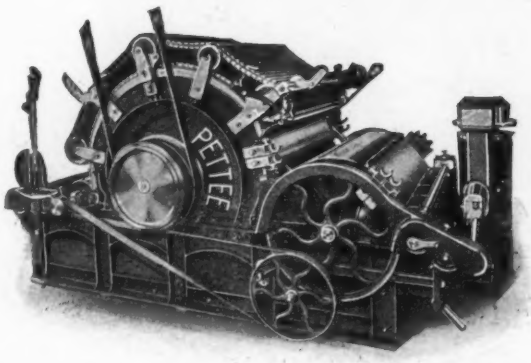
The Stafford Company

Readville, Mass.

Saco and Pettee Machine Shops

NEWTON UPPER FALLS, MASS., U. S. A.

COTTON MACHINERY



Revolving
Flat Cards,
Drawing
Frames,
Railway Heads,
Slubbing,
Intermediate
and
Roving
Frames,
Spinning Frames,
Spoolers
and
Reels.

Shops—

Biddeford, Me.

Newton Upper Falls, Mass.

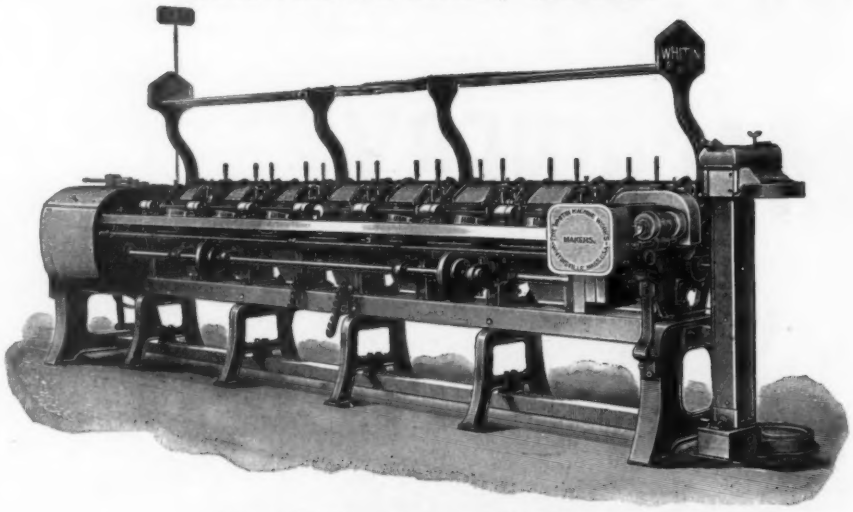
Southern Agent, A. H. WASHBURN, Charlotte, N. C.

THE

WHITIN MACHINE WORKS,

Cotton Machinery

WHITINSVILLE, MASS.



HIGH SPEED COMBER 1906 MODEL.

Revolving Flat Carding Engines,
Sliver Lap Machines,
Ribbon Lap Machines, Combers,
Railway Heads, Drawing Frames,
Spinning Frames, Spoolers, Twisters,
Long Chain Quilling Machines, Reels, Looms.

Southern Agent,
S. W. CRAMER

Trust Building, CHARLOTTE, N. C.
Equitable Building, ATLANTA, GA.

"Kitson Products"

Blowing Systems

For Conveying Bale Cotton
from Storehouse to Picker-room

Self-Feeding Openers
Lappers and
Cleaning Trunks

Waste-Working Machinery

Raw Stock Cotton Dryers

We own the Patterns and can furnish REPAIR PARTS for PICKERS
formerly built by

WHITEHEAD & ATHERTON, . Lowell, Mass.
ATHERTON MACHINE CO., - - Lowell, Mass.
A. T. ATHERTON MACHINE CO., Pawtucket, R. I.

Kitson Machine Shop

Lowell, Mass.

SCOTT & WILLIAMS

2079 E. Cumberland Street, Philadelphia, Pa., U. S. A.

BUILDERS OF

Full Particulars, Samples and Special Catalogues on Application.

Rib Knitting Machinery for Underwear and Hosiery

Plain, Single Lever or with Welt, Slack Course and Automatic Slackening Device for Welt.

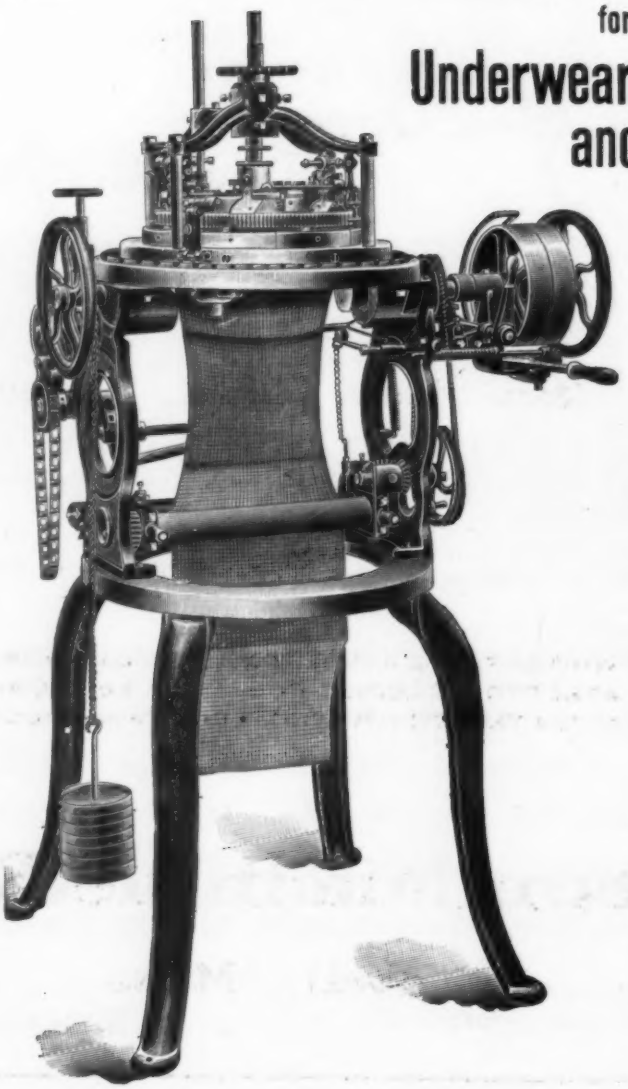
Improved Measuring Device, by actual length knit.

Sizes 8 to 24 inches, inclusive, varying by one inch.

Number of Feeds, 4 to 12, according to style and diameter of machine.

Solid Forged Steel Cylinders, specially hardened or with patent inserted walls for fine fabric.

Special Machinery for Sweaters, etc.



The illustration shows our

Improved High Speed Single Lever Automatic Ribbed Underwear Machine

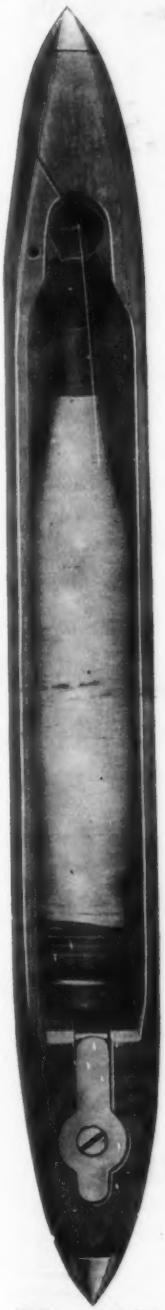
for making ladies' and gents' ribbed underwear, union suits, etc., plain and shaped.

We build Loopers, Ribbers and other Machinery for Knitting Mills

As well as

A Complete Line of Full Automatic and 7-8 Automatic Seamless Hosiery Machinery.

THE NEW UNIVERSAL FILLING BOBBIN



Ordinary Cobbin in Shuttle

TWICE as much YARN in the SHUTTLE

with any kind of material; in many cases **Three** times as much.

The "UNIVERSAL" BOBBIN marks a new era in weaving by guaranteeing at the loom an increase in production per operative of from 40 to 60 per cent.

FURTHERMORE:

1. It obviates conditioning to prevent kinking.
2. It eliminates half the number of bobbins at present required.
3. It prevents pickouts from breaks, slubs and bunches.
4. It reduces seconds.
5. It stops waste.

Write for Descriptive Circular of

THE

No. 90 Universal Bobbin Winder

A SELF-OILING, HIGH SPEED MACHINE GIVING A MAXIMUM PRODUCTION IN A MINIMUM FLOOR SPACE.

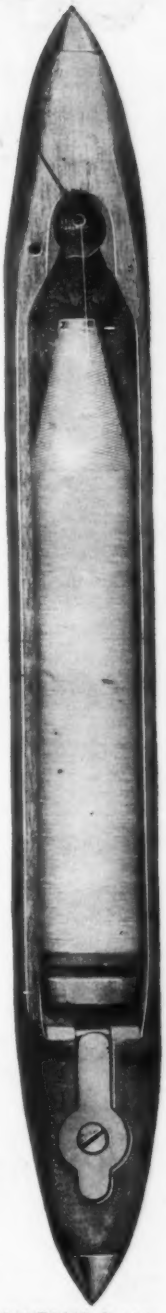
UNIVERSAL WINDING MACHINES

are at present in successful use all over the world; they are built in various styles for **coning** and **tubing** of yarns single end, doubled for **twisting** and **multipled** for wire **insulating**, also for **thread**, **twine** and **cord**, as well as for **narrow loom quilling** and specialties.

UNIVERSAL WINDERS give the greatest production both per spindle and per operative

Universal Winding Company

95 South St., BOSTON, Mass., U.S.A.



UNIVERSAL Bobbin in Shuttle

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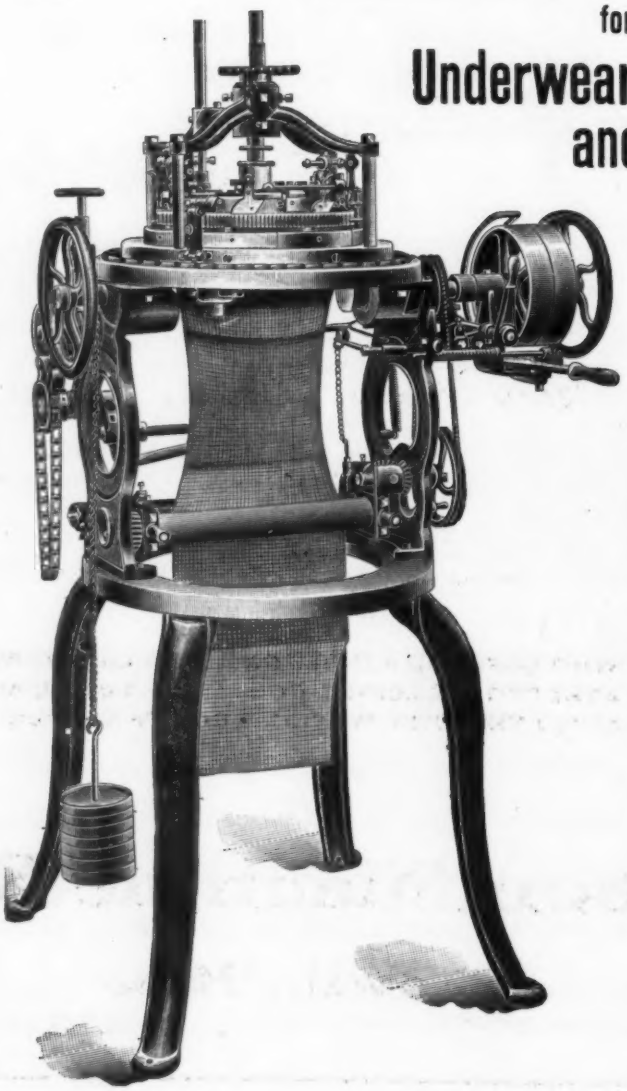

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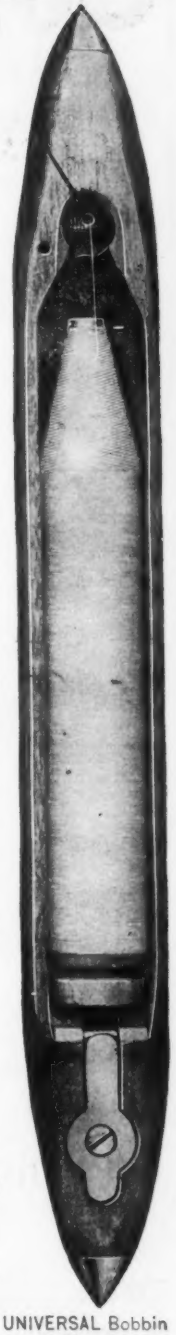


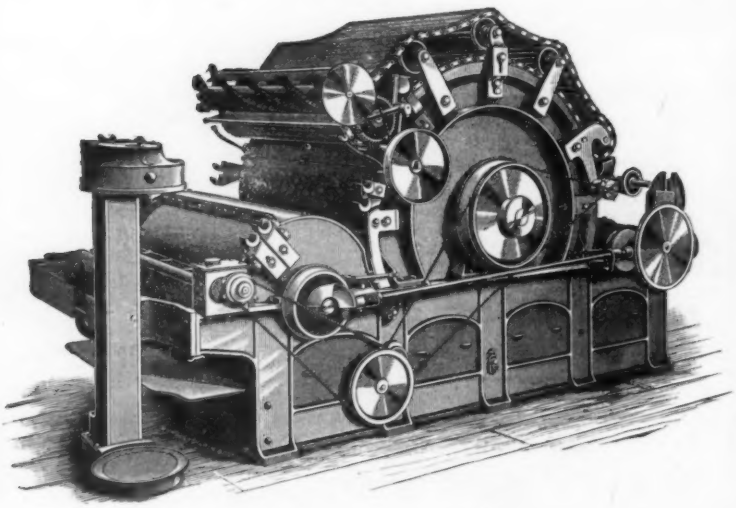
UNIVERSAL Bobbin in Shuttle

Cotton Machinery

MASON MACHINE WORKS,

TAUNTON, MASS.

Southern Office,
Charlotte,
N. C.



Cards,
Combers, Railway
Heads, Drawing Frames
Spinning Frames, Mules and Looms

INCLUDING

Plain and Fancy Silk Looms

EVAN ARTHUR LEIGH

232 Summer Street (opposite the South Station), Boston, Mass.

SOLE AGENT

IN THE UNITED STATES AND CANADA FOR

Platt Bros. & Co., Ltd.

BY FAR THE LARGEST MAKERS IN THE WORLD OF

Cotton, Woolen and Worsted Machinery

Platt's Patent Opening and Picking Machinery.
Platt's Cotton Comber will comb from 7-8" stock to Sea Islands.
Platt's Special Machinery for Making Cotton Waste into Yarns.
Platt's Special Machinery for Making French Worsted Yarns.
Platt's Woolen and Worsted Carding Engines, Special Designs.
Platt's Cotton, Cotton Waste, Woolen and Worsted Mules.

MATHER & PLATT, LTD.

Dyeing and Finishing Machinery.
Archbutt-Deeley System for purifying and softening water.

TEXTILE MACHINERY ASSOCIATION, LTD.

Flax, Hemp and Jute Machinery.

GEORGE HODGSON, LTD.

Looms for Worsteds, etc.

THE PATENT AUTOMATIC FEEDING MACH. CO., LTD.

Patent Feeding Machines for wool, cotton, flax, fur and fibrous material.

JOSEPH SYKES BROS.,
Card Clothing for Cotton.

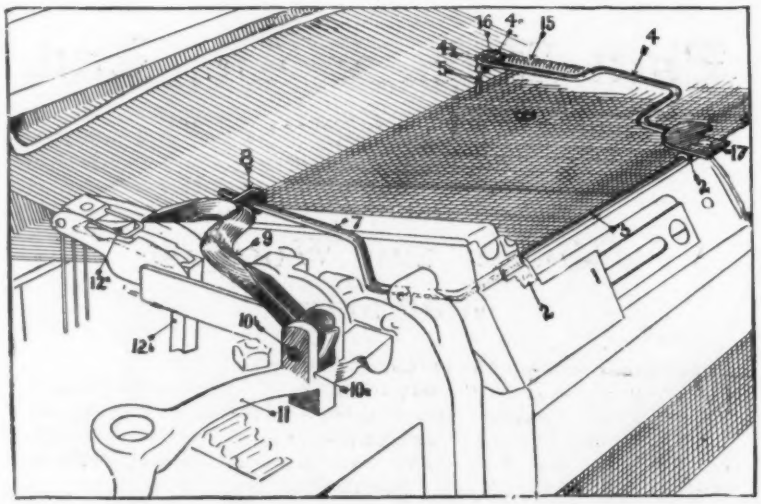
JAMES CRITCHLEY & SON'S,
Card Clothing for Woolen and Worsted.

DRONSFIELD BROS'.
Grinding Machinery and Emery Filleting. The Best French and English Combing and Rubbing Aprons. Harding's Pins and Circles. Varey's Fallers, etc.

AS REPEAT ORDERS

are considered about the most complete indorsement—"actions speak louder than words"—we will, upon request, gladly submit for your consideration a little data along this line concerning SALES of the

CLAYTON & BENTLEY



Automatic Thin-Place Preventer

Many mill people who are now using this attachment on

Automatic Iron Breast Beam Looms, Single & Double Fork

on work ranging from 18 to 94 pick, and 2 to 20 harness, tell us, that by *preventing thin-places* it pays for itself **every ninety days to six months.**

Samples and demonstration cost you nothing, and you incur no obligation to buy through requesting samples.

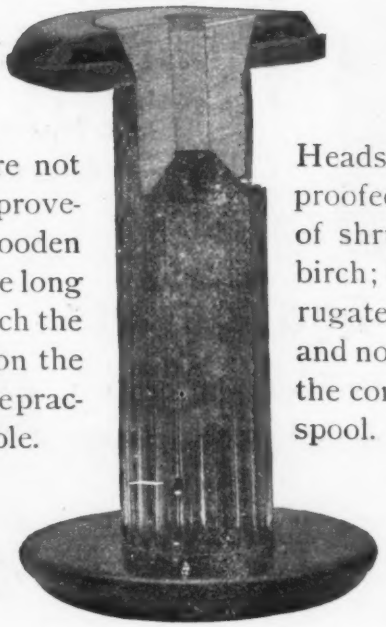
MANUFACTURED BY

CLAYTON & BENTLEY COMPANY,

ATLANTA, GEORGIA.

RHODE ISLAND FIBER SPOOLS

These spools are not only a great improvement over wooden spools, but, in the long run, they are much the cheapest spools on the market, as they are practically unbreakable.



Heads are of waterproofed fiber; bushings of shrunk, waterproof birch; barrel is of corrugated tinned steel, and no glue is used in the construction of the spool.

MANUFACTURED BY THE
RHODE ISLAND FIBER SPOOL CO.,
PROVIDENCE, R. I.

Write for free sample to

SALES AGENTS

CELL DRIER MACHINE CO.
TAUNTON, MASS.

GREENSBORO SUPPLY CO.
GREENSBORO, N. C.

TURBINE WATER WHEELS

HUNT-McCORMICK

Cylinder or Balance Gate Casing

Least Water,
Greatest Power,
Uniform Speed

Complete Equipments

We make Special Designs to meet TEXTILE MILL conditions.

FLUMES, REGULATORS,
SHAFTING, PULLEYS, GEARS,
CLUTCHES, HANGERS, ETC.
UNDER-WRITER FIRE PUMPS.

Wet Finishing Machinery

Fulling Mills——————Washers
Dyeing and Bleaching Machines
FOR WOVEN AND KNIT GOODS

Dye Tubs—Soap Tanks—Centrifugal Pumps

RODNEY HUNT MACHINE CO.

Branch Office: 70 Kilby St., Boston. Works: Orange, Mass.

JAMES HUNTER MACHINE CO.

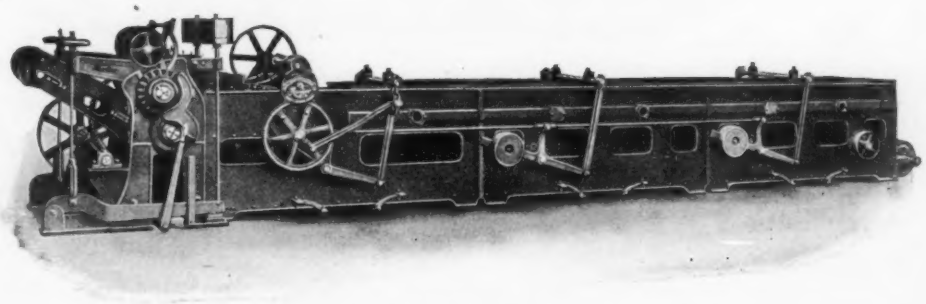
NORTH ADAMS, MASS., U. S. A.

Wool Washers. *Bulletin 54*

The Hunter

MODEL D

WOOL WASHER



Parallel Rake.

Not "A Has Been." Not "A Going To Be"
but a present day success.

Bowls 36" or 48" wide; 16-24-32 and 40 feet long.

Better work and more of it.
Large Settling Bowl giving clean scouring liquor.

Self Contained Flushing Appliance.

Better investigate.

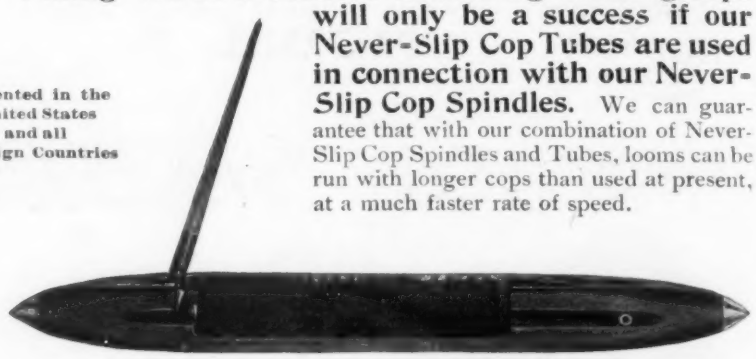
Never-Slip
Cop Spindles and Tubes

Never-Slip Cop Tube

Patent applied for.

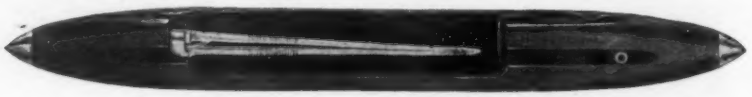
Patented in the United States and all Foreign Countries

Filling-Waste is reduced to nothing and long Cops will only be a success if our Never-Slip Cop Tubes are used in connection with our Never-Slip Cop Spindles. We can guarantee that with our combination of Never-Slip Cop Spindles and Tubes, looms can be run with longer cops than used at present, at a much faster rate of speed.



Shuttle with Spindle Raised

U. S. Patents: 778851, Jan 3, 1905; 790611, May 23, 1905; other patents pending



Shuttle with Spindle Lowered

U. S. Patents: 778851, Jan. 3, 1905; 790611, May 23, 1905; other patents pending

American Textile Specialty Machinery Co.

MANUFACTURERS OF

Shuttles and Shuttle Irons for all Textile Purposes.

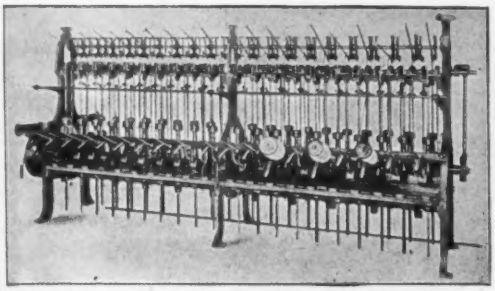
New York Office, 363-373 Rider Ave. **670 Eddy St., Providence, R. I.**

OSWALD LEVER CO.

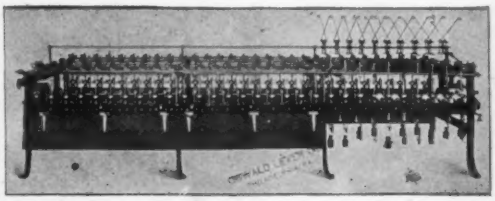
(Formerly LEVER & GRUNDY.)

MANUFACTURERS OF TEXTILE MACHINERY AND SOLE MAKERS OF OUR PATENTED SPECIALTIES IN THE UNITED STATES.

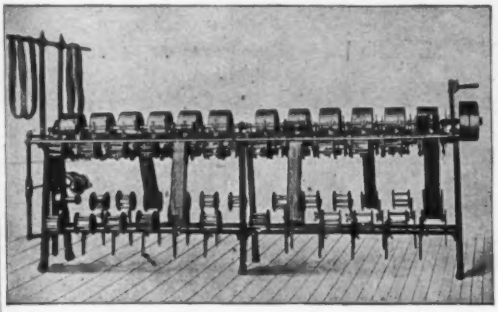
Conical and Parallel Tube Winding Machines; Warping Machines and Creels; Brass Bobbin Winding and other Machinery for lace mills; Chenille Cutting Machines, Sectional Warping Mills, Beaming Machines, etc.



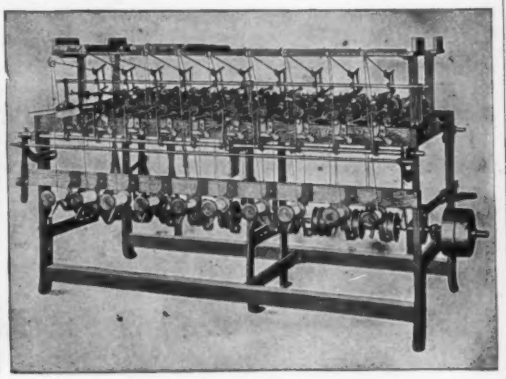
Vertical Spindle Gear Driven Winder, as used by all manufacturers of heavy duck, jute, cotton bagging and carpets.



Silk Winder to wind on Quills, Paper Tubes or Butts. The finest of cotton or silk.



Pressure Drum Spooling Machine. This machine is adapted for spooling any kind of yarn, whether from mule cops or skeins.

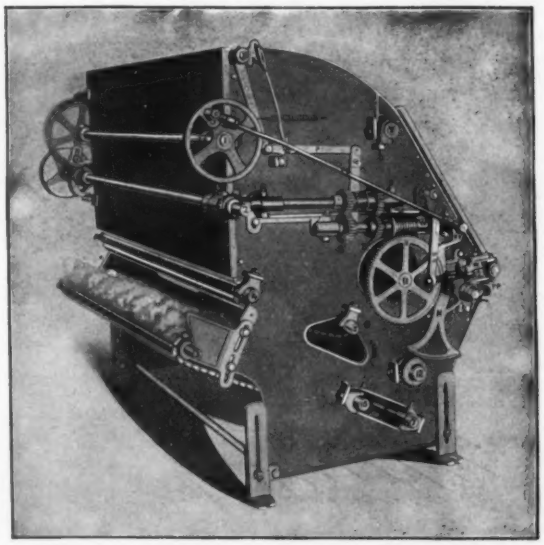


This Machine may be arranged to wind from skeins, spools, cones, or any kind of spinning bobbins. Most suitable machine for cotton or woolen blankets.

Cop Winding Machines for butts to weave from outside; Filling Bobbin or Quill Winding Machines; Vertical Spindle Spooling Machines for Silk, fine cotton, wool and worsted; Variable Speed Bobbin Machines for large bobbins used in knitting mills; Dresser Spooling Machines; Reeling Machines.

Lehigh Ave. and Mascher Sts., PHILADELPHIA, PA., U. S. A.

THE FISHER PATENT CARD FEED



Write Us For List of Mills Where Machines Are Used.

Woonsocket Machine and Press Company

WOONSOCKET, R. I.

PRACTICAL FIRE PROTECTION

If you want your mill buildings properly protected against the fire hazard, thereby obtaining the lowest insurance rates, you must have a supply of water which is instantly available under high pressure and absolutely independent of the successful or immediate operation of pumps or other machinery. The old method of storing such a supply was by wood tanks, generally built on top of buildings. As these tanks are short lived they soon become, themselves, a menace to the building instead of a protector. The sudden bursting of such a tank has often done as much damage as a fire. The up-to-date method of storing water is by means of a steel tank on a steel tower. We make a specialty of the design, manufacture and erection of these tanks of any desired capacity, in any part of the country, to meet any local conditions. Our tanks are recommended by the Factory Mutual Insurance Companies and endorsed by all of our past customers. We have built about seven hundred towers and tanks in all parts of the country, about 50 of which have been erected for Textile Mills. Every one of these is giving satisfaction. Write for booklet No. 7 which gives a list of all our customers with whom we invite you to correspond. The cut shows a tank which we built for the Belton Cotton Mills, at Belton, S. C. The large tank is kept full at all times for fire protection; the small one supplies water for use in the buildings.

Chicago Bridge and Iron Works

105th and Troop Sts. Chicago, Ill.

Notice to Woolen & Waste Spinners, Manufacturers, Etc.

The Universal Woolen & Waste Carding Process

NAMELY:

The 2 and 3 Cylinder Process against 5, 6 and more Cylinders, double doffing of Cylinders, Refining and Equalizing of the 2 Webbs, the BEST Tape Condenser machine, system Josephy. 100% more production than any other system, less Floor space, Attendance and Working Costs.

Messrs. Newman & Sons, Huddersfield, who so successfully introduced these new carding methods in Great Britain, where 24 modern installations are now in most satisfactory working order, and who conducted several parties of Lancashire Waste and Yorkshire Woolen Spinners to Austria and Germany (see Textile World Record, December, 1907, page 109–112) are open to arrange a Study Trip for American Waste Spinners to Austria, Bohemia and Germany in July, 1908.

The SPECIAL UNIVERSAL WASTE CARD gives up to 200% more production and cleaner, stronger yarn than the BEST Lancashire type.
JOSEPHY'S CONTINUOUS SPINNING FRAMES unsurpassed for strong Twist with Selfacting character.

Special facilities will be given to study modern Carding, Spinning, Bleaching and Humidifying methods. Mr. G. W. L. Neumann will be in New York in May to arrange personally all matters; any other Informations, Catalogues, Plans and Estimates upon application to

NEWMAN & SONS,

82a, New North Road, Huddersfield.

Josephy's Sole Representatives for Great Britain, British Colonies, North America and Oversea Export.

Cables: Universal: Huddersfield.

(We are prepared to sell our American rights for Josephy's Tape Condenser and other machines outright or by license to first class Machine Makers. An energetic, potential General Agent will be appointed for U. S. and Canada. Applications with references requested.)

The Buffalo System

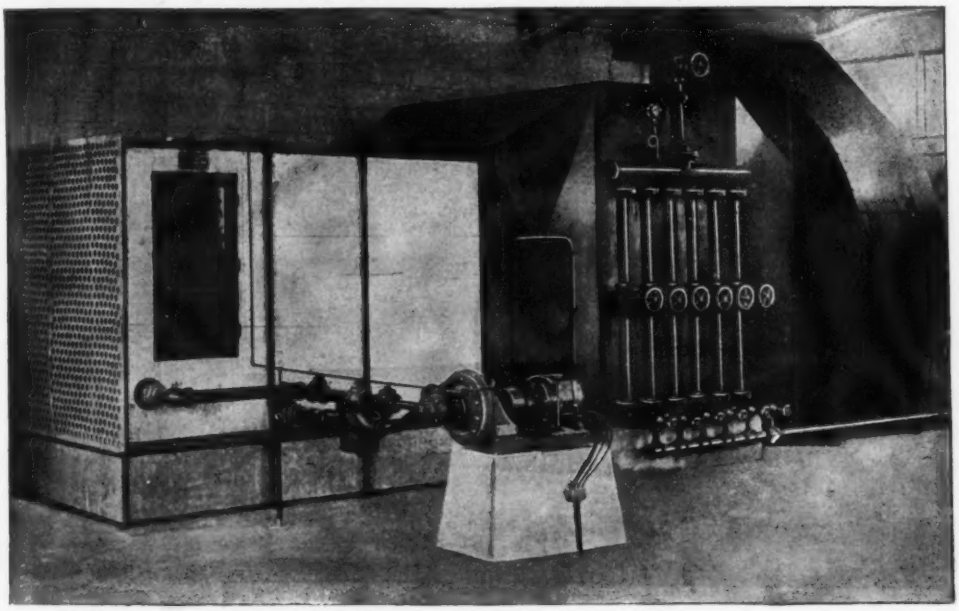
of

Atmospheric Conditioning

SCIENTIFIC and PRACTICAL

HUMIDIFIES—COOLS—CLEANSES—VENTILATES—HEATS

WITH PERFECT AUTOMATIC CONTROL



Write for Catalog 97 T. W., which illustrates and explains fully this distinct departure from other types of humidifiers.

Buffalo Forge Co.,

Buffalo, N. Y.

English and German Specialties for Bleachers, Calico Printers, Dyers and Finishers

Dyeing and bleaching apparatus for **Cross Spools**, Cops, Warp Beams, Card Sliver and **Slubber Bobbins. Permanent Lustering** of **Broadcloth,** etc. Complete **Carding, Spinning** and **Weaving** Machinery for **Waste** and **Short Staples,** for **Blankets,** etc. **Twisting** Machinery for Fancy Cotton and Worsted Yarns. Patent Curved **Napping** and **Carding Wire. Drying, Conditioning** and **Mercerizing Machinery** for all forms of Yarn.

Descriptive catalogues, prices and information on application to

L. H. A. Schwartz & Co., 141 Milk Street, Boston

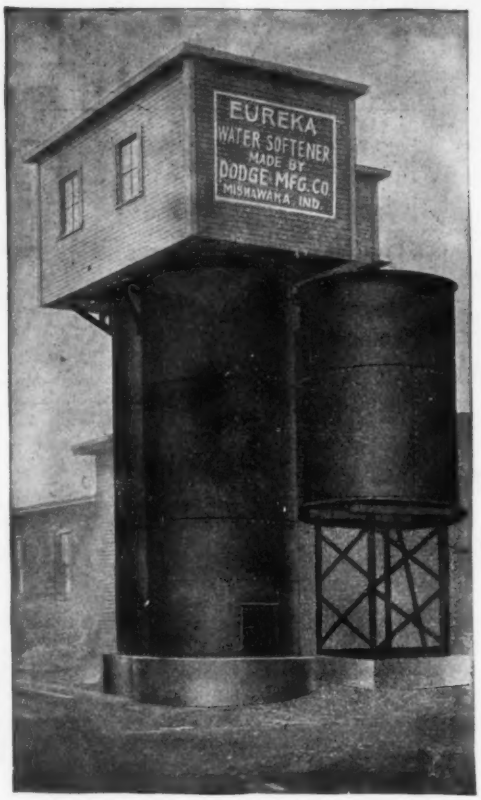
Sole and direct agents for R. & O. Lindemann's Egyptian Cotton
East Indian and Peruvian Cottons

Pure—Clear—Soft—Water

IS WHAT YOU NEED FOR

WASHING, SCOURING, BLEACHING, RINSING,
DYEING, FINISHING, LAUNDERING AND FOR

BOILER FEEDING



"Eureka" System at Des Moines (Ia.) Hosiery Mills.

It *increases* the Standard of your Product, and

Decreases your cost of manufacture.

It *economizes* in dyes, repairs to boilers and in fuel consumption.

The Eureka Water Softening and Purifying System

Insures a Continuous, Uniform Water for all purposes, regardless of variations in the initial supply, be it stream, pond, lake or well.

The Investment

is reasonable, and cost of operation insignificant.

This System pays large dividends to the owner and carries the *DODGE* stamp of mechanical perfection

Our Red Book No. 3 contains full information, and is sent on request to all who are interested.

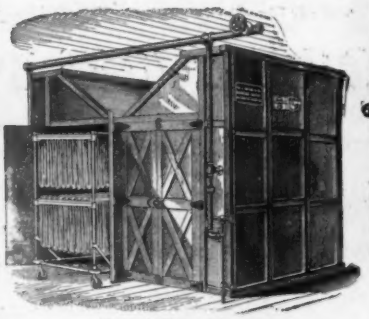
Dodge Manufacturing Company
Water Softener Dept. Mishawaka, Indiana

"HURRICANE" DRYERS AND FANS

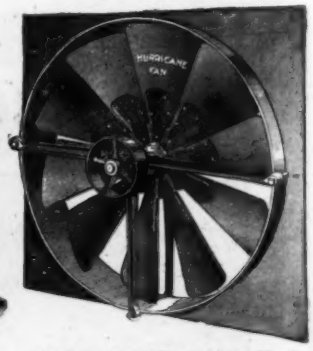
For Wool, Cotton Stock, Yarn, Stockings, Underwear, Etc.

BELT DRIVEN AND MOTOR DRIVEN

Power Screw Hydraulic and Lever **Presses**



Truck Yarn Dryer.



"Hurricane" Fan, Style No. 2. Write for Catalogues.

COMPLETE EQUIPMENTS FOR DYEING, SCOURING, BLEACHING, CARBONIZING, OXIDIZING, CHROMING, Etc.

PHILADELPHIA DRYING MACHINERY CO.

6721 Germantown Ave., Philadelphia, Pa.

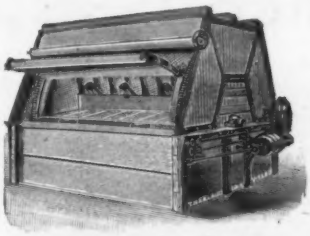
Automatically maintains the best atmospheric conditions

VENTILATION & HUMIDIFICATION — BELL PURE AIR AND COOLING CO. — TRADE MARK

Send for full particulars.

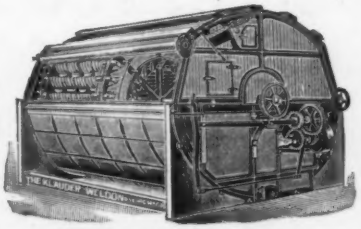
The Bell System keeps properly moistened and purified air in constant circulation, improves ventilation and distributes the moisture equally to all parts of the room. The direct result of this steady and moderate moistening of materials is more flexible and coherent fibre that works uniformly and smoothly, doing away with lots of machine troubles that waste time and spoil tempers. The free circulation of pure air gives operatives increased energy. These improved conditions combine to produce a larger output of a better quality.

Bell Pure Air & Cooling Co., 97-103 Cedar St., New York.



RAW WOOL AND COTTON MACHINE.

MACHINES
sold on
2 MONTHS' TRIAL
YOU
TAKE
NO
RISK

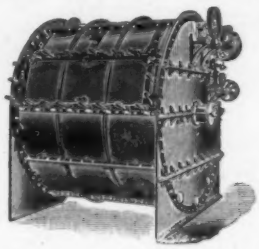


SKEIN AND SLUBBING MACHINE.

THE KLAUDER-WELDON DYEING MACHINE COMPANY

P. O. Box K, AMSTERDAM, N. Y.

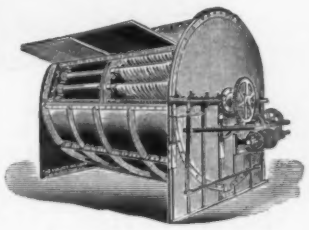
Machines for Dyeing, Bleaching and Scouring Woolen, Worsted, Cotton and Silk Skeins—Slubbing—Raw Cotton and Wool, Waste, Rags, Shoddy, Hosiery, Underwear, Hats, Caps, Knit Cloth, Tapes, etc.



SULPHUR HOSIERY MACHINE.

Special Machines for Sulphur Colors

WILL EARN THEIR COST IN
LABOR ALONE
IN FROM
6 TO 12 MONTHS
ACCORDING TO CAPACITY



SULPHUR SKEIN MACHINE.

Cloth Washers, Dye Tubs, Vats, Fulling Mills,
Piece Dyeing Machines, Special Machinery,
Brass Founders, Tanks, To Order.

Hopkins Machine Works, Inc.

BRIDGETON, R. I.

Providence Office, 49 Westminster St.

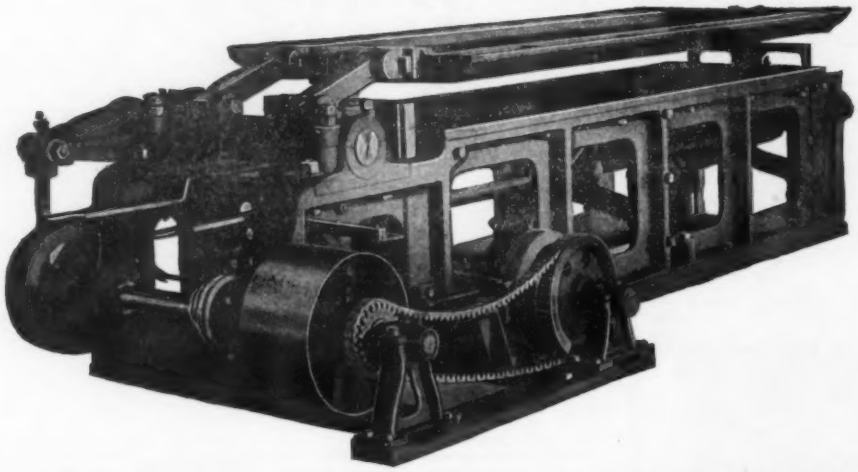
Spindles and Flyers, for Cotton, Wool, Silk, Flax, etc.

Send for our latest Catalogue and Price List

Dye Tub Valves, Cloth Guides, etc.
Bronze or Porcelain Rings.

Farrel Foundry & Machine Co.

ANSONIA, CONN.



SINGLE AND DOUBLE FELT HARDENERS.

Chilled and Soft Iron Rolls. Heavy Transmission Machinery.
Machine Moulded and Machine Cut Gearing, to 20 ft. diameter, Etc., Etc.
Heavy Castings, in Gray Iron or Semi Steel.

LAWSONS

Hope Foundry, LEEDS, England

BRANCH OF

Fairbairn Lawson Combe Barbour, Ltd.

MAKERS OF MACHINERY FOR

Preparing and Spinning

Flax, Hemp, Tow and Jute

Special Machinery for the Manufacture of Twines, Rope Yarns and Binder Twine

Good's Combined Hackling and Spreading Machine.

Long Reach Screw-Gill Drawing Frames. Chain-Gill Drawing Frames with Apron Heads.

Patent High-Speed Horizontal and Automatic Spinning Frames for Manila.

Improved Laying Machines.

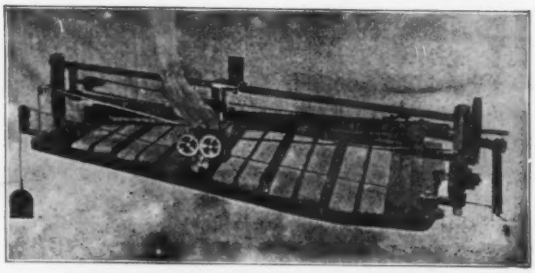
Haskell-Dawes Tubing Twisters.

Brownell's Patent Twisting and Laying Machines for Twine.

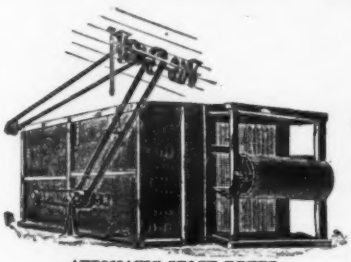
N. B.—Complete Plans and Estimates for Flax, Tow, Hemp and Jute Mills, Trawl Twine Factories and Steam Ropeworks.

"20th CENTURY" MACHINERY

Dryers for Wool and Cotton Stock, Yarn, Stockings and Underwear. Carbonizers, Ventilating Fans, Yarn and Wool Scouring Machines, Cloth Washing and Dyeing Machines, Tom Toms, Chroming Oxidizing Machines.



WEB FEED.



AUTOMATIC STOCK DRYER.

We also manufacture Kershaw's Geared Traveler and Improved Web Feed.

Garnett Machines and Pickers.

We Recloth or furnish New Metallic Toothed Cylinders and Feed Rolls.

AMERICAN DRYING MACHINERY CO.,

19th and Westmoreland Sts.. Philadelphia, Pa.

Patented in the United States and Foreign Countries.

SEND FOR BOOKLET.

The American

WROUGHT STEEL

PULLEY

Is a parting PULLEY and can be applied without stripping the shaft.
It is Light, STRONG, and lasts a lifetime.
It clamps to the shaft perfectly — keys and set-screws superfluous.
Interchangeable metal Bushings to fit shafts of different sizes.
Particularly adapted to TEXTILE manufacturing.

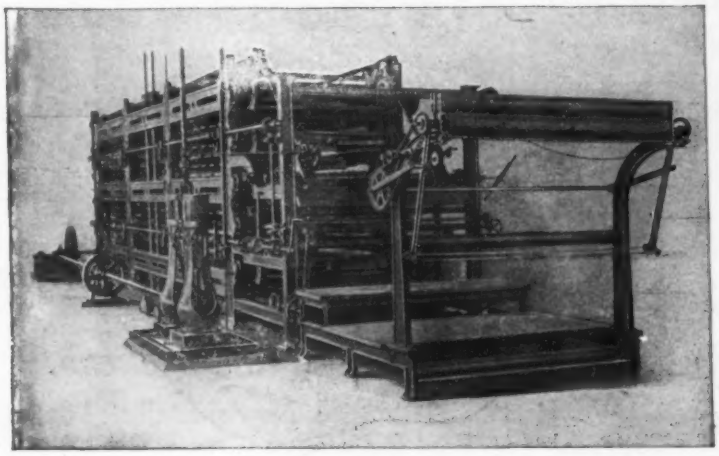
Sold by the Leading Supply Houses all over the WORLD.

The American Pulley Co.,

29th and Bristol Streets, : : PHILADELPHIA, PA.

TENTERING AND DRYING MACHINES

WITH LOW DOWN FEED. PATENTED FEBRUARY 26, 1895.



Tentering and Drying Machines on Pipe System. Special Dryers for Heavy Felt Goods. Hot Air Drying and Tentering Machines.

Fulling Mills, Washers, Chinchilla and Whitney Machines, Whipping Machines, Cone Willows, Marsden & Blamire Lap Feed, Dyeing Machines for Piece Goods, Soaping Machines, Wringing Machines, Jigs (Double or Single), Dewing Machines, etc. Crabbing Machines for worsted. Made either single, double or triple.

MANUFACTURED BY

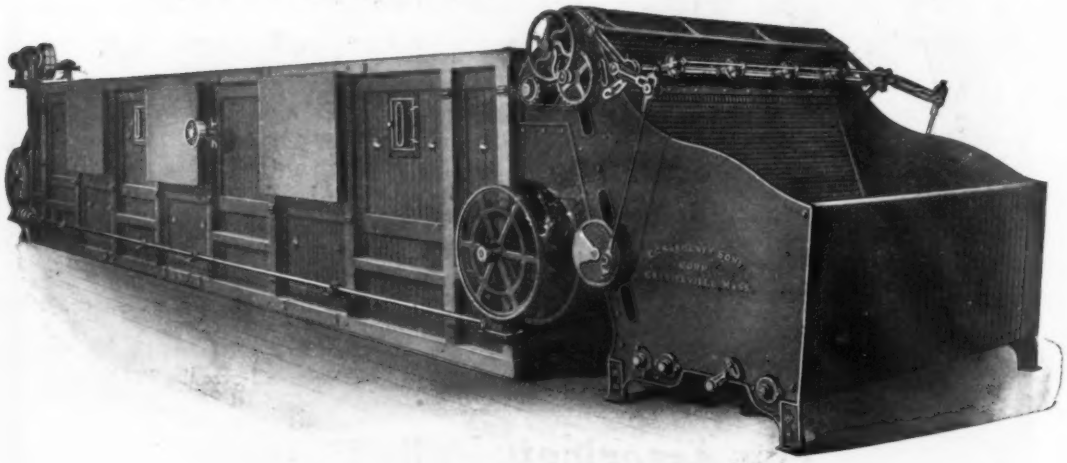
D. R. KENYON & SON, Raritan, N. J. Successors to KENYON BROS.

Long Distance Telephone—Somerville 21.

C. G. SARGENT'S SONS

CORPORATION

GRANITEVILLE, MASS.



BUILDERS OF

Stock Dryers, Wool Washers, Wool Dusters, Carbonizing Plants, Burr Pickers, Etc.

B C
TRADE MARK

250,000 ends and upward.

If you are **not** using a Barber Warp Tying Machine and are twisting or re-drawing 250,000 ends and upward a week (cotton warps solid colors) we believe we can suggest a plan whereby you can reduce your drawing-in cost an average of fifty per cent.

We base our belief upon the fact that we **have** secured these results for cotton mills in the United States using today nearly two hundred Barber Warp Tying Machines.

Will you give us an opportunity to figure with you.

Barber-Colman Company,

77-79 No. Washington St., cor. Thacher, Boston, Mass.

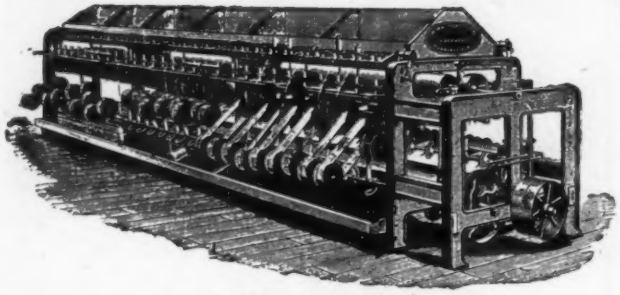
Telegraphic Address: "WHITELEY, HUDDERSFIELD." Nat. Telephone, 598 and 599.

Wm Whiteley & Sons Ltd

LOCKWOOD, HUDDERSFIELD.

MANUFACTURERS OF

Woolen Machinery



CONE PIRN WINDER.

Makers of all descriptions of Tentering and Drying Machines.

Moore & Whiteley's Patent Wool and Cotton Dryer.

Crabbing or Winding-on Frames.

Cross Raising Machines, Wool Scouring Machines,

Hydro Extractors. Warp Sizing.

Cool Air Drying and Beaming Machines.

Warping Mills with Patent Sectional Dividing Apparatus.

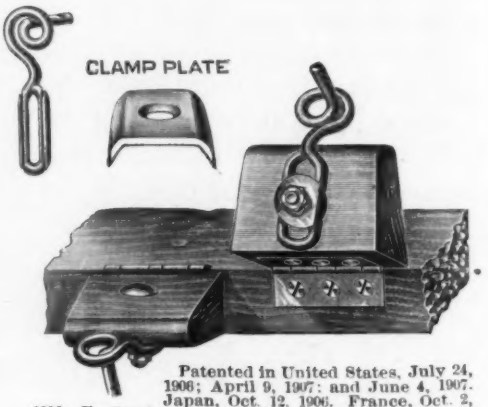
Self-Acting Mules. Bobbin or Pirn Winder, &c., &c.

Mercerizing Machinery.

Second-hand Tentering Machines in good repair at low prices.

Palmer's Improved Adjustable Thread Guide

This guide supplies an accurate, rigid and permanent adjustment, and is attached to the ordinary spinning frame clapper. It has more merits than any other adjustable guide and at a greatly reduced cost. Perfect adjustment saves broken ends, abnormal wear of the rings, and increases the production and quality. Will soon pay for itself. *Send for free sample and circular.*



Patented and Manufactured by

The I. E. Palmer Co.

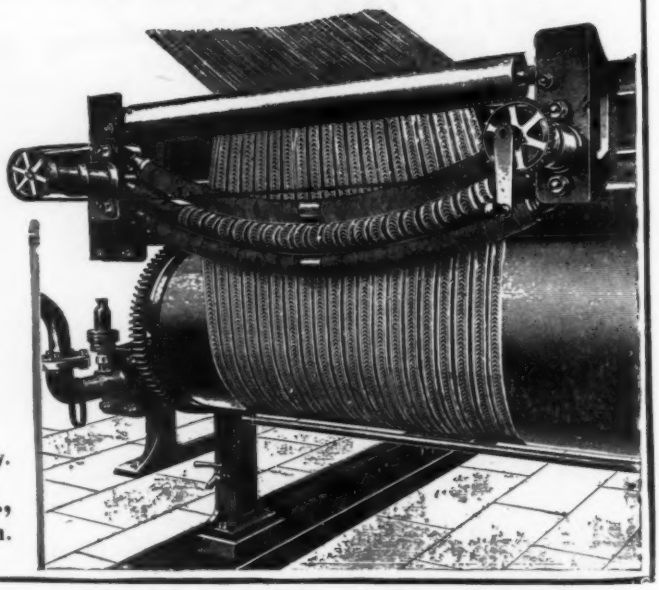
Middletown, Conn , U. S. A.

Patented in United States, July 24, 1906; April 9, 1907; and June 4, 1907. Japan, Oct. 12, 1906. France, Oct. 2, 1906. England, Sept. 13, 1906. Spain, July 23, 1906. Belgium, July 24, 1906 and Italy.
Patents applied for in the United States, Germany, Switzerland, Austria, Russia, Poland and India.

Perfectly Even Tension Both Ways

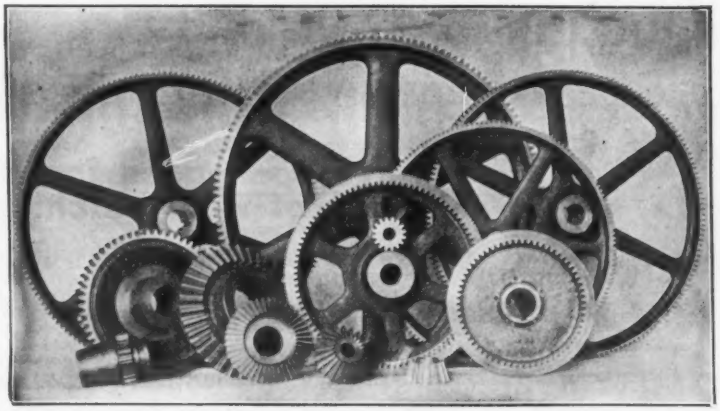
THIS ideal cloth expander gets the full width of the goods in a most satisfactory way. Can be attached to calenders or cans. Hundreds in use in Great Britain and on the Continent—hundreds more in the United States, with constant satisfaction.

Manufacturers unsolicited say to us, "You have the greatest thing in a spreader ever brought to our attention."



We put them in on trial.
Test it on your own work—'t will pay.

Thomas Leyland & Co.,
60 India St., - - - Boston.

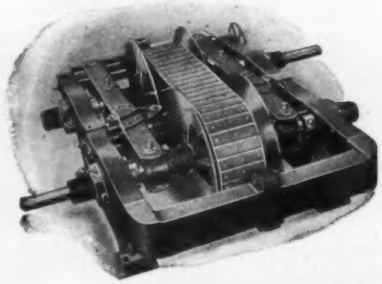


Gears For Prompt Delivery

We make accurate gears in Spurs, Bevels, Internals, Spirals and Worms. Can furnish Cast Iron, Bronze, Steel, Fibre or our New Process Noiseless Gears. Let us estimate on your requirements.

The New Process Raw Hide Company, Syracuse, N. Y.

"The Reeves" Variable Speed Transmission



Used to regulate the speed of textile machinery such as tenter frames, driers, dyeing machines, printing machines, in fact any machine requiring variable speed.

INCREASES THE OUTPUT TO THE MAXIMUM

BETTERS THE QUALITY OF GOODS

REDUCES OPERATING EXPENSES TO THE MINIMUM

What more could you ask?

"The proof of the pudding is the eating thereof." Try it.

REEVES PULLEY COMPANY
Columbus, Indiana

New England Agents
Cell Drier Machine Company
84 State Street, Boston

New York Representatives
Patterson, Gottfried & Hunter
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Over 100,000 barrels of

Breton Oils for Wool

have been used for all kinds of wool batching

Manufactured at our own works from the finest materials with careful laboratory tests. Tell us about your goods and we'll tell you the right "Breton."

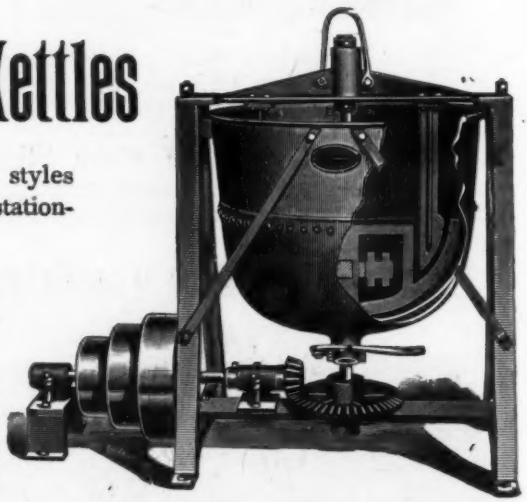
We send subject to test and your approval.

BORNE, SCRYMSER COMPANY, 80 South St.. New York.

Boston. Fall River. Philadelphia. Works, Claremont, N. J.

Established 1841.

Steam Jacket Mixing Kettles



This cut represents one of our many styles of steam mixing kettles, made with stationary and removable stirrers.

E. B. BADGER & SONS CO.,

COPPERSMITHS,

66 Pitts St., - BOSTON, MASS.

Badger Fire Extinguisher.

Crabbing, Steam Finishing, Opening and Folding, Tacking, Sewing, Squeezing Machines

BIRCH BROTHERS, SOMERVILLE, MASS.

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Bleaching and Napping Machinery

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WILLIAM FIRTH CO.

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ASA LEES & CO., Limited,

TEXTILE MACHINERY,

OF EVERY DESCRIPTION FOR COTTON, WOOLEN AND WORSTED.

SOLE AGENTS FOR

JOSEPH STUBBS, Gassing, Winding and Reeling Machinery for Cotton, Worsted and Silk

GEO. HATTERSLEY & SONS, LTD. Makers of every Description of Looms, etc.

JAMES MACKIE & SONS, LTD., Makers of Flax, Tow, Hemp and Jute Preparing and Spinning Machinery.

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GOODBRAND & CO., Yarn Testing Machinery, Wrap Reels, etc.

JOSHUA KERSHAW & SON, Roller Skins, etc.

GEORGE SMITH, Doffer Combs, etc.

BRADFORD STEEL PIN CO., Comber Pins.

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ALSO AGENTS FOR

JOSEPH SYKES BROS., Hardened and Tempered Steel Card Clothing for Cotton.

WILLIAM TATHAM & CO., Waste Machinery.

DRONSFIELD BROS., Limited, Emery Wheel Grinders. Emery Fillet and Flat Grinding Machines.

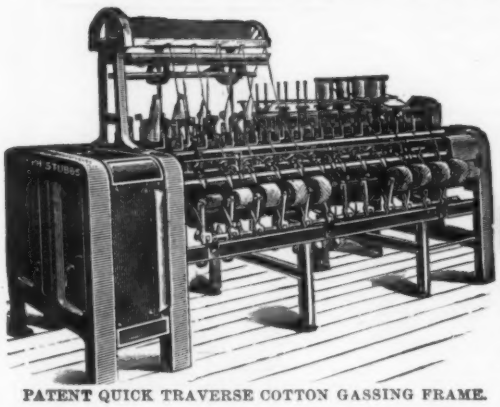
COTTON CORD AND VELVET CUTTING MACHINE CO., Corduroy Cutting Machines, etc.

PICK GLASSES, LEATHER APRONS, PATENT WIRE CHAIN APRONS.

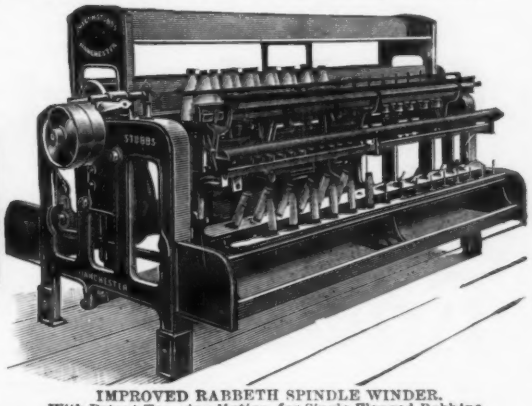
JOSEPH STUBBS - - Manchester, England.

SPECIAL MACHINERY

For Winding, Gassing, Reeling, Preparing, Polishing and Bundling Yarns.



PATENT QUICK TRAVERSE COTTON GASSING FRAME.



IMPROVED RABBETH SPINDLE WINDER.
With Patent Tapering Motion, for Single Flanged Bobbins.

Sole Agents for the United States and Canada.

WILLIAM FIRTH COMPANY, Post Office Square Bldg., 79 Milk St., BOSTON, MASS.

DOBBINS' ELECTRIC SOAP, ABSOLUTELY PURE AND UNIFORM.

Dobbins' Hard Water Soap, a Specific for Hard Water or Water Charged with Chemicals.

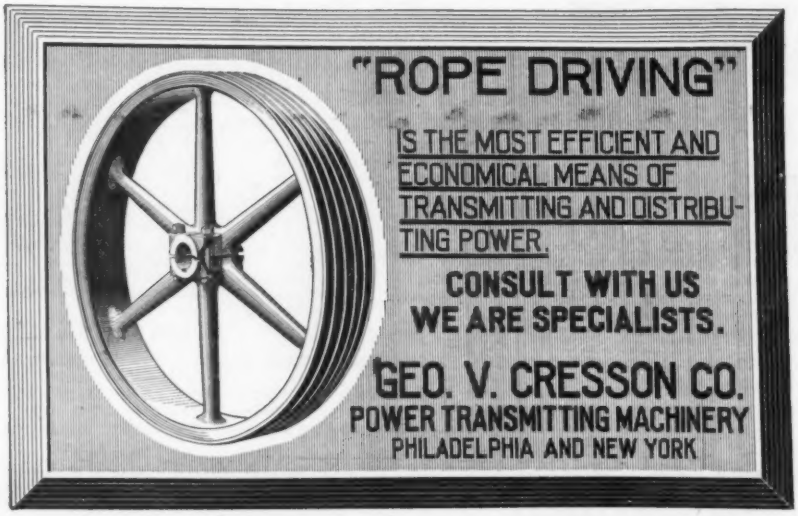
AMMONIATED POTASH SALTS FOR SCOURING.

Dobbins' Palm Oil Fulling Soap. Dobbins' "Fast Black" Soap. Pure Olive Oil Potash Soaps.

FREE SAMPLE SENT FOR TRIAL ON REQUEST.

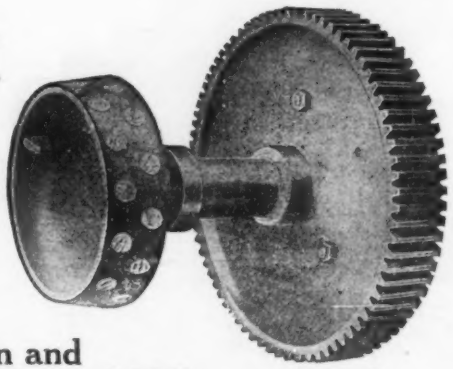
DOBBINS SOAP MANUFACTURING CO., 119 SOUTH FOURTH STREET, PHILADELPHIA, PENN.

BULLETIN ON ESSENTIALS OF ROPE DRIVING


"ROPE DRIVING"
IS THE MOST EFFICIENT AND ECONOMICAL MEANS OF TRANSMITTING AND DISTRIBUTING POWER.
CONSULT WITH US
WE ARE SPECIALISTS.
GEO. V. CRESSON CO.
POWER TRANSMITTING MACHINERY
PHILADELPHIA AND NEW YORK

NOW READY FOR DISTRIBUTION. SEND FOR COPY

Cork Insert Mule Frictions



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Now in use on both the foreign and domestic Mules in the Wood Worsted Mill

Cork Inserts have a constantly widening application in Textile Mills. *Now used* in leading mills in Loom Clutches, Line Shaft Clutches, Pulleys and Mule Frictions. They greatly increase Power Transmission efficiency. Write for particulars.

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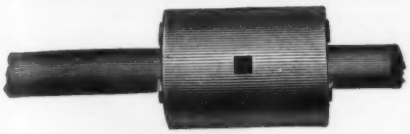

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DOUBLE CONE VISE COUPLING

has a way of holding shafts together, that no other COUPLING can equal.

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Makers of

SHAFTS,
COUPLINGS,
PULLEYS,
HANGERS,

and all most approved appliances for the Transmission of Power.

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MACHINE TOOLS.
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General Electric Company

ELECTRIC POWER EQUIPMENT

Curtis Steam Turbines in the Power House and General Electric Induction Motors in the mill constitute the ideal power equipment for the modern Textile Mill.

Mill specialists of 13 years' experience are at customer's service

Mill Power Office, 84 State St., Boston — Principal Office: Schenectady, N. Y. — Sales Offices in all large cities.
NEW YORK OFFICE, 44 Broad Street. BALTIMORE OFFICE, Continental Trust Bldg.
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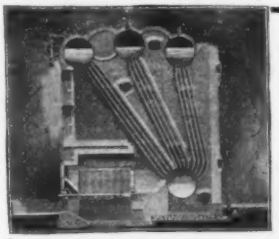
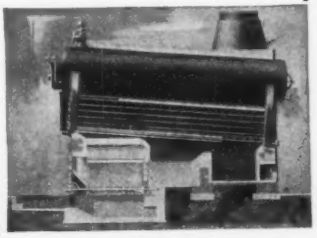
1537



The Murphy Automatic Smokeless Furnace

Burns Slack with Great Economy

The Murphy can be installed under any type of fire-tube or water-tube boiler and to units of any size.



SETTING UNDER TWO TYPES OF BOILERS SHOWN HEREWITH

MURPHY IRON WORKS

DETROIT, MICH.

Hydro-Extractors, Exhaust Fans, Dye Tanks and Tubs.

Adjusts itself to an uneven load, runs without vibration. Unusual capacity for high-class work.

Send for Catalog.

Tolhurst Machine Works,
Fulton St. and 6th Ave.,
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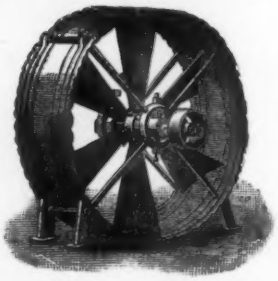

Moves more air than any other fan made. Very efficient under widely varying conditions. Noiseless and does not obstruct the light.

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SALEM, MASS.

ELEVATORS

ESPECIALLY ADAPTED FOR MILL USE.

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Sold direct or through principal Supply Houses.

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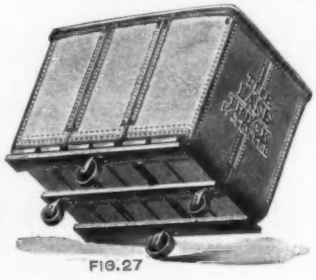


FIG. 27

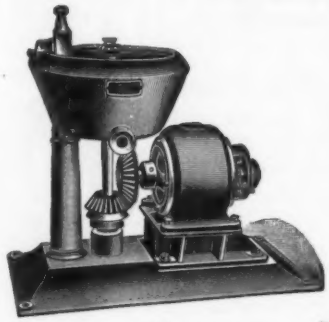
MANUFACTURED ONLY BY

W. T. LANE & BROTHER,
Office and Works, **Poughkeepsie, N. Y.**

ELECTRICALLY DRIVEN

CENTRIFUGAL

Oil Separator



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Separates oil from bolts, nuts, and scraps of all kind—oil that would otherwise be wasted, and makes it as good as it ever was, for further use. **Send for Catalogue.**

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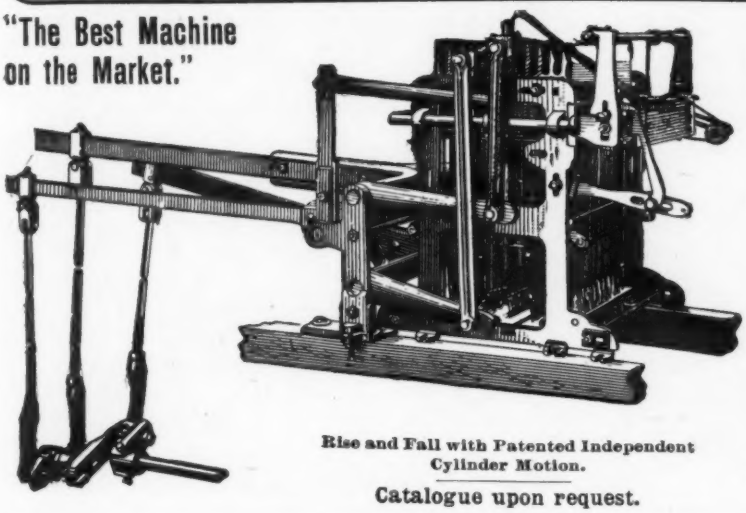
Incorporated 1864. Founded 1845.

"The Best Machine on the Market."



Rise and Fall with Patented Independent Cylinder Motion.

Catalogue upon request.

USE THE

HALTON JACQUARD

Original Fine Index Machines

Single Lift, Double Lift, Double Cylinder, Rise and Fall, Crossborder,

THOMAS HALTON'S SONS,

Allegheny Avenue and C Street,

PHILADELPHIA

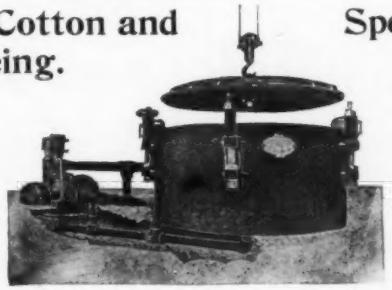
Representative
H. A. Forbes, Paterson, N. J.

Our latest Vacuum Dyeing Machine

WRITE US FOR PARTICULARS

For Raw Stock, Cotton and Wool Dyeing.

The only perfect machine for Sulphur Black Dyeing.



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Condition of Stock,
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Production,
Labor Saving.

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D. M. HEY, MANAGER.

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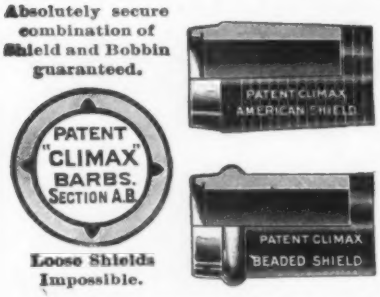
Absolutely secure combination of Shield and Bobbin guaranteed.



Loose Shields Impossible.

Specialties: PATENT "LOCKFAST" and "CLIMAX" Shields. ENAMELLED CONDITIONING BOBBINS, Impervious to Steam, Moisture or Oil.

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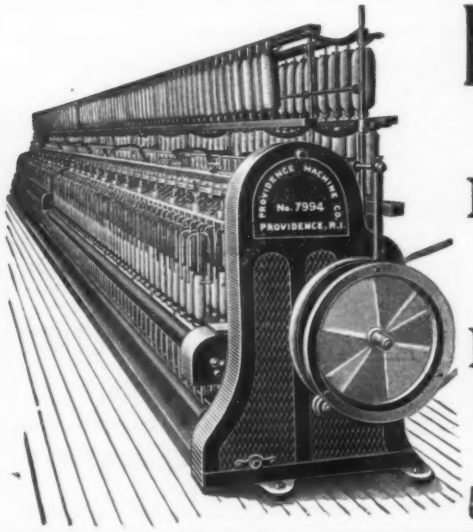

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Manufacturers of

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Improved Worsted Roving Frames

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MOODUS, CONN.,

MANUFACTURERS OF IMPROVED

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OF ALL KINDS

For Laying Line, Twine and Cord of all sizes.

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Prices and particulars on application.

Run true on card table—have a very smooth finish

which allows the roving to be drawn from the can with practically no resistance, thus avoiding broken ends.

Vulcan Roving Cans

are light in weight, rigid, strong and very durable. Made of the best chemically treated fibre with tinned soft steel rings, accurate in size and perfectly round. Get our prices.

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Received the HIGHEST AWARD on recommendation of the FRANKLIN INSTITUTE for

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Is the largest manufacturer of HUMIDIFIERS in the World. The last twenty years receiving the HIGHEST AWARD in this country and Europe for its AIR-MOISTENING SYSTEM. EIGHT GOLD MEDALS and others.

The Only Perfect System of Air Moistening

Has Been Adopted by the Representative Manufacturers of this Country.

The only System adopted in the Textile Schools. Write for booklet "T" on Humidification.
Legal proceedings will at once be taken against infringers and users of infringements.

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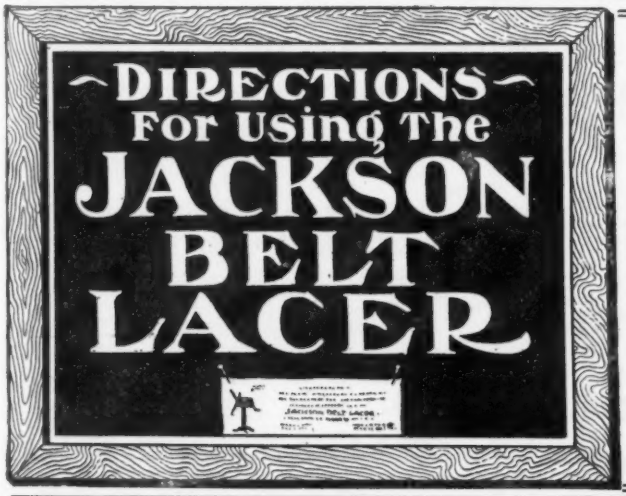

Not many directions are needed for operating the

Jackson Belt Lacer

It's so simple

that any workman can lace a belt properly at the first trial, and in 1-5 the time otherwise required.

The Jackson Joint is **neater, cheaper, more durable** and **more compact** than any other.

It's a big saver of time and money around the shop.

Jackson Belt Lacers are used in the U. S. Government machine shops. You won't lose by following Uncle Sam's example.

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Birdsboro Steel F'dry & Mch. Co.

BIRDSBORO, PA.

1866 1907

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40th Annual Statement

January 1, 1907.

Capital,	**$500,000.00**
Surplus,	**1,485,457.73**
Reserves,	**1,931,847.29**
Assets,	**3,978,245 71**

The HARTFORD was the Pioneer Company in the field of Steam Boiler Insurance, and it is the only company which makes a specialty of and does exclusively a steam boiler inspection and insurance business.

The HARTFORD is the only company whose entire talent and energies are applied to the study of steam, to the scientific construction and installation of boilers, and to their periodical inspection by expert mechanics.

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The HARTFORD is now doing nearly nine-tenths of the Inspection and Insurance of Steam Boilers in the New England States, and nearly two-thirds of the entire amount done throughout the United States.

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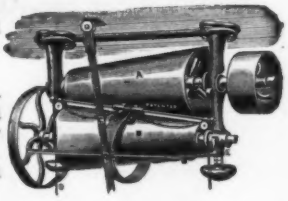
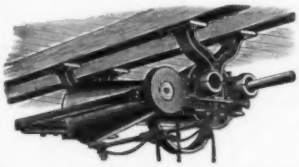
Variable Speed Countershafts

The Evans Friction Cone Pulleys



will drive your machines at any desired speed from 1 to 6 by simply pulling a cord.

They are guaranteed to do your work.



We'll furnish them for either floor or hanging use.

Over Ten Thousand Sets in Operation in this Country and Europe.

Send for Catalogue.

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G. Frank Evans. - Newton Center, Mass.

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EASTON AND BURNHAM MACHINE CO.

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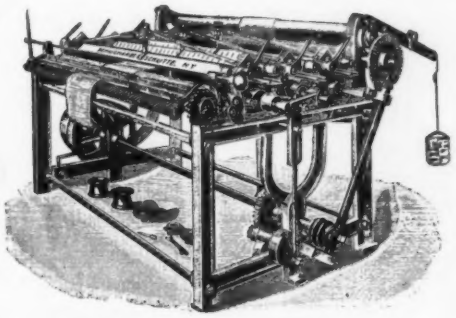
Do not fail to get information about our

Improved Finishing Machines



They embody features
not to be found in other makes.
This illustrates our

No. 13 Pneumatic Grinding and Polishing Machine.

Our line also includes

No. 19 Combined Steamer, wet and damp steam Dry Finishing Machine
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MAKERS OF ALL CLASSES OF

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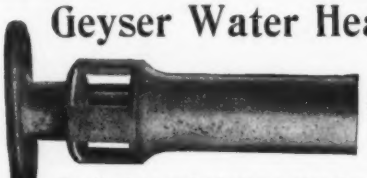

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To attach to end of steam pipe for heating liquids in tanks or vats. Avoids that disagreeable noise caused by the direct introduction of a steam jet and raises the liquid to the required temperature in about 70% of time required by latter.

By its thorough circulation it distributes an even temperature throughout the tank. Price list upon application.

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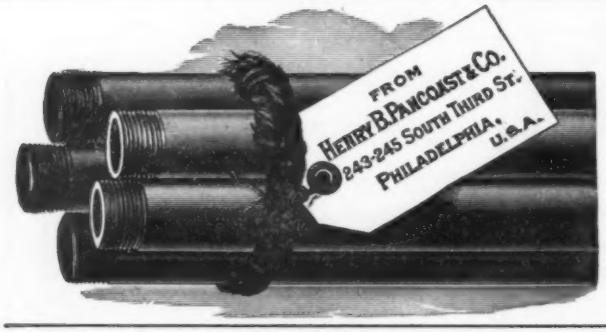

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PIPE CUTTING A SPECIALTY.

Rubber Covered Rolls for all Mechanical Purposes

Special Densities for each purpose giving results not obtainable elsewhere.

Rubber Covered Slasher Rolls

Also Power Wringers of all sizes and descriptions.

Old Rolls Recovered. New Rolls Complete.

The American Wringer Co., 99 Chambers Street, New York City.

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Pulley and Gear Forcer.

We build a simple, powerful and very effective machine to remove gears and pulleys from shafting. Many mills use them. **Only costs $8.00.** Saves its cost in time and breakage.

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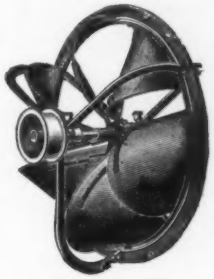
clears out and keeps out the fog as nothing else does. It enables the workmen to get out a better product at less cost.

Very efficient and economical for drying.

This is our Berry Wheel, the most effective agent for moving air, eliminating steam and other impurities in the atmosphere.



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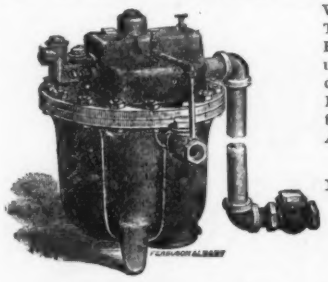
NEW FEATURES: Wearing Parts, Valve and Seat Renewable.



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Established 1870.
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Eureka Fire Hose

THE BEST FIRE HOSE MADE.

(Trade Mark.)

For use in

Cotton Mills, Woolen Mills and Factories.

Seamless Woven and Rubber lined EUREKA COTTON HOSE, has no equal. Send for circular and testimonials.

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Creosoted Flooring

is laid just like any ordinary flooring, but there the likeness ends. Once laid it is there to stay until worn out.

Creosoted Flooring

never rots under any conditions, therefore greatly lessens the outlay for **Dye House and Wet Finishing Room Floors and is ideal for all wet places.** It does away with the loss and annoyance caused by frequent renewals

Meets Textile Needs.

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"Aqua" Water Proof Belting
IS WATER PROOF

"Aqua" is the only belt to use in shops where dripping oil makes ordinary belts slip, in textile mills where the atmosphere is laden with fumes or moisture, or in any place where there are acid fumes that would disintegrate an oak tanned belt.

"Aqua" will transmit more power, and outwear many times any rubber, canvas, or so-called "waterproof" oak-tanned belting.

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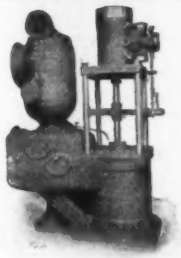
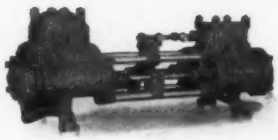


VERTICAL AIR PUMP AND JET CONDENSER



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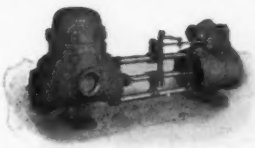

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Will not gum, freeze or leave a sediment. Is free from impurities. Uniform in quality. Can be used at all seasons of the year.

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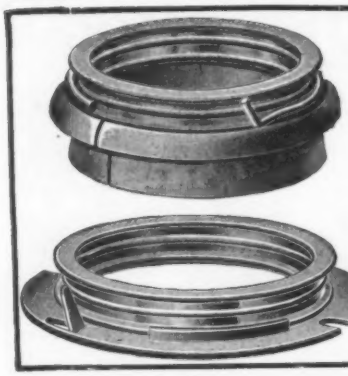

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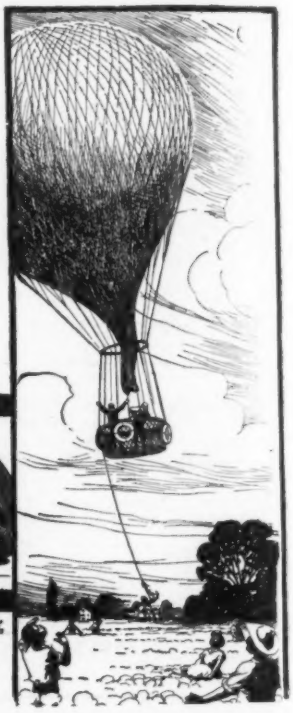

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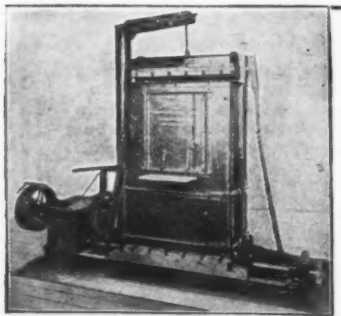

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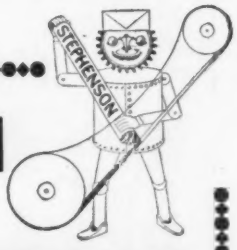

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ALL STYLES AND KINDS FOR FLAT AND ROUND BRAIDS.

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AND ALL BRAIDED FABRICS.

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¶ If so they should not be disfigured by the uneven impressions of a hand stamp. **Use Kaumagraph Stamps**—the scientific method—and your goods will be adorned with the real imprint of quality. The whole problem of Textile Stamping is solved in using Kaumagraph Stamps. Samples sent on request.

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Chain Blocks in the Textile Mill.

This pictures two **Yale & Towne DUPLEX Chain Blocks** handling the cover and contents of a Vacuum Dyeing Machine. They are hooked into trolleys running on an I-beam overhead track.

Note that the hand chain of one of the hoists is operated by the engine, thus converting it into a power hoist.

Chain Blocks are available for much of the heavy lifting about textile mills and effect great money-savings.

Y. & T. Hoists are sold by Supply and Hardware Dealers everywhere.

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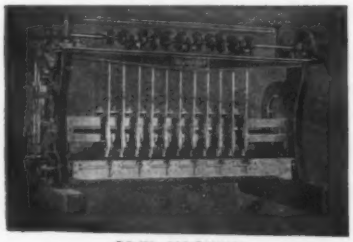

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This is a fac-simile of the CROSS CREEK BONDS. Read the other side of this insert and then write the Company for particulars.

This is a fac-simile of the CROSS CREEK BONDS. Read the other side of this insert and then write the Company for particulars.

AS SHOWING the importance of the coal industry at the present time, we submit the value of the leading mineral products of the United States to the year 1906, which we get from the United States Geological Survey, Bulletin No. 316.

Coal - - -	$513,079,809	Clay Products -	$161,032,722
Iron - - -	505,700,000	Oil and Gas - -	137,318,667
Copper - - -	177,595,888	Gold and Silver -	132,630,200

Coal heads the list and always will. We hear a whole lot every day about copper, oil, gas, gold and silver, but the total value of all these products doesn't equal that of coal, and not one of them could continue in business without the fuel, coal. Coal is the foundation upon which all of our industries are built.

The CROSS CREEK COAL COMPANY have a large acreage, (7,000 acres), and an immense tonnage, estimated from sixty million (60,000,000) to one hundred million (100,000,000) tons, and the profit in operation is exceptionally large, over $1.00 per ton.

Those having funds to invest are invited to communicate with the office, 609 MUTUAL LIFE BLDG., BUFFALO, N. Y., where particulars as to the bonds, the BONUS OF PREFERRED STOCK, the management, reports, etc., will be furnished.

Several years ago "Pig Iron" Kelly, Father of the House of Representatives, said,—"The South is the coming Eldorado of American adventure. As to the mountainous region of the South, it is richer in natural wealth and in advantages for the development of that wealth, it has a finer climate, better water and higher conditions of health than any region of which I have any knowledge."

Abram S. Hewitt, rightly, when living, called, "The first citizen of America," said,—"There is no corresponding region on this habitable globe which has so many advantages as the South."

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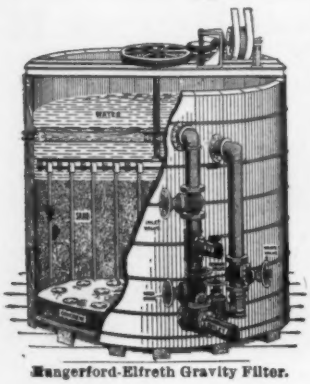
Water Softeners



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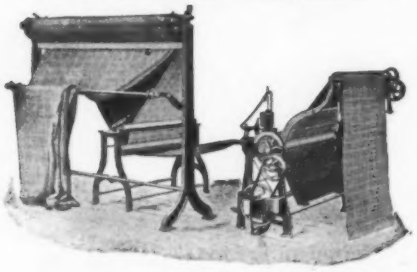

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Without Change
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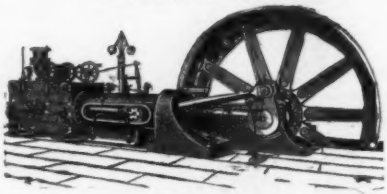

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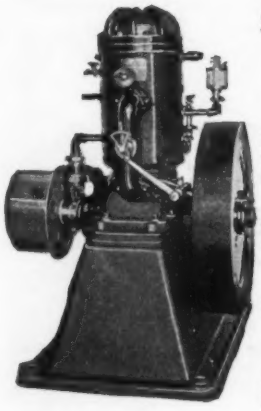

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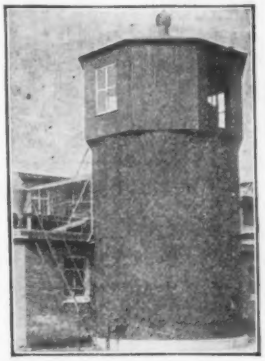

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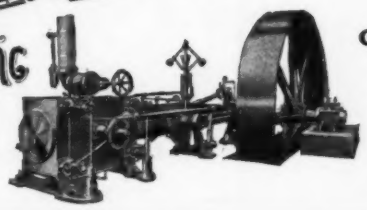

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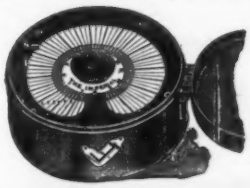

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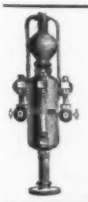

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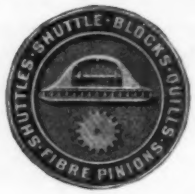

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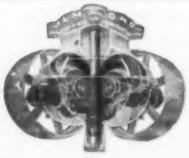
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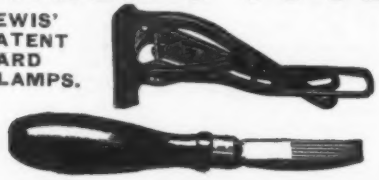
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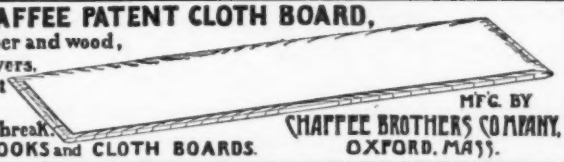

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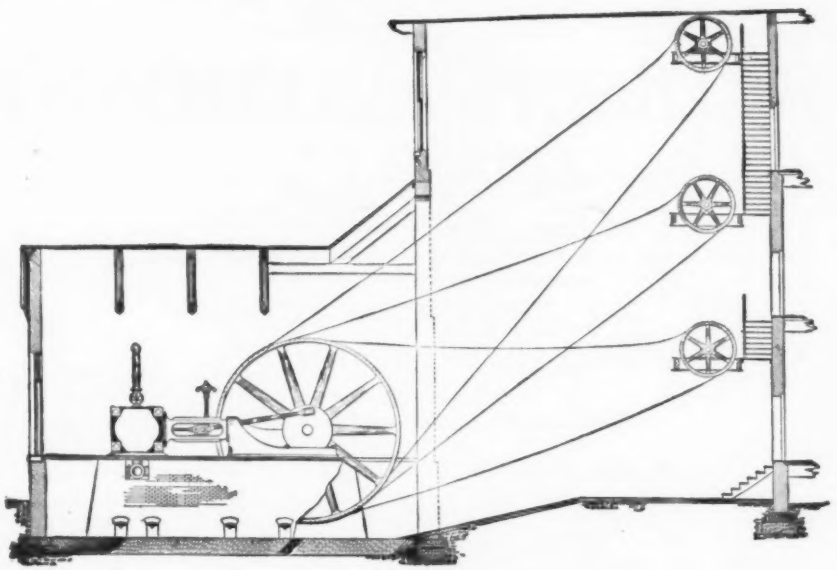

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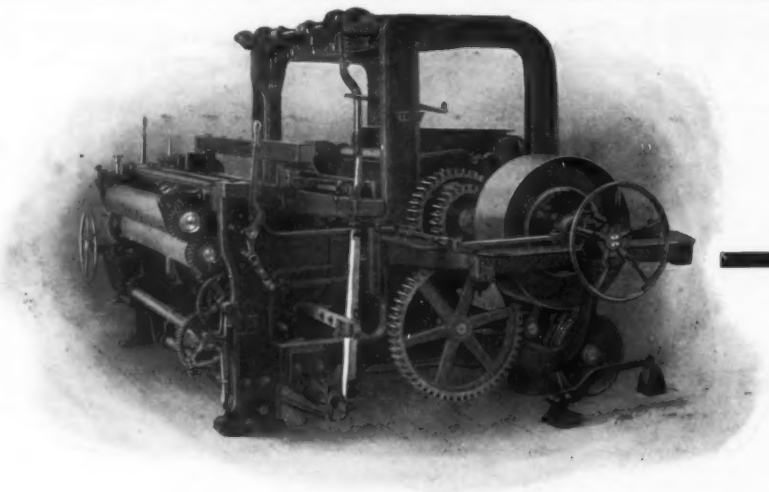

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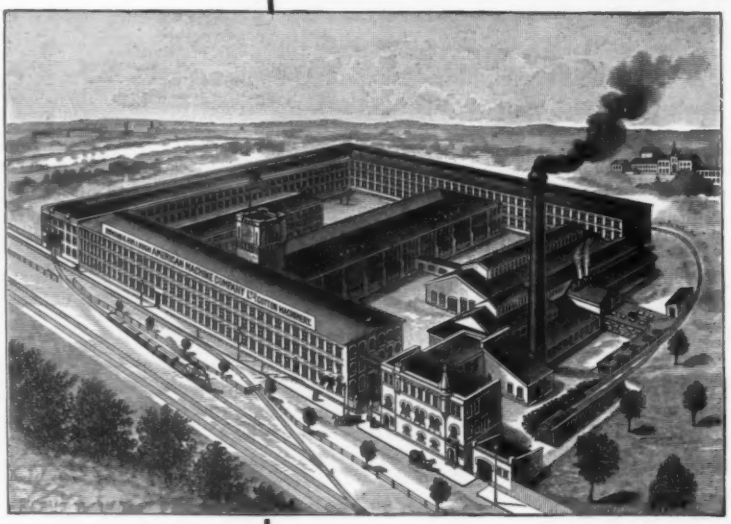

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VOL. 34 (NEW SERIES.) February, 1908 No. 5

Monthly Comment.

The Fall River Sliding Scale.

The mill operatives at Fall River are watching the cotton and print cloth markets with some anxiety as to the effect of the changes in prices on the margin by which their wages are to be fixed in May. Last November under the sliding scale agreement wages for the succeeding six months were left unchanged on a basis of 23.96 cents per cut. The margin, which for the preceding six months had averaged $1.31, and at that time stood at $1.303, has since then been steadily falling and on Jan. 28 it had dropped to $.899. Both employers and operatives join in the hope that a turn in the market during the next three months will raise the average margin to such a point that a reduction of wages may be avoided.

The present situation illustrates one important advantage of the sliding scale agreement that has not received the attention it deserves. We refer to the better realization of the community of interests between the mill owners and the workers. The operatives are watching the course of prices for cotton and cloth as closely as ever their employers did. The sullen preparations for resistance to an expected wage reduction which were a feature of every situation such as the present, in the old days before the sliding scale was adopted, are missing now and instead we have earnest discussions as to what effect market conditions will have on wages and mill profits. At the January meeting of the Textile Council at Fall River, President Tansey responded to the general desire for definite information on this subject by presenting a statement of the highest, lowest and average prices of cotton and print cloth since November and the course of the margin. It would be difficult to over-emphasize the good results that are sure to follow a continuance of such conditions. To Fall River belongs the credit of inaugurating the system of automatic regulation of cotton mill wages, setting an example that should be followed wherever possible.

Combing Worsted Tops in Australia.

According to advices from Australia the law authorizing the payment of a bounty on worsted cops combed in Australia has led a long-established firm of wool scourers to establish a large worsted top mill near Sydney. At its last session the Australian Parliament appropriated $250,000 to be paid during a period of five years to Australian combers at the rate of 3 cents a pound for the first three years and 2 cents for the next two years. It was argued in support of the

bill that Australia received only $115,000,000 for the wool clip, while $250,000,000 additional was paid for the manufacture of this clip into finished goods. A million operatives, supporting a total population of six or seven million, were employed in other countries in manufacturing Australian wool into finished goods, while in Australia the industry gave work to but a few shippers in addition to the shepherds tending their flocks.

These arguments led to the passage of the top bounty bill. The business is to be established on a large scale by the Sydney firm, the plans calling for a plant giving employment to one thousand hands, and backed by a capital of $500,000. Bradford is naturally skeptical of the success of the Australian enterprise.

English Spinners as American Cotton Growers.

The movement started some time ago among English spinners to buy a plantation in the United States and engage in the cultivation of cotton recently received a new impetus when a circular was sent out to the Lancashire trade by the committee having the matter in charge. This circular, signed by C. W. Macara, J. R. Barlow, H. W. Macalister, G. Buckley, S. Newton, Thomas Coates and W. J. Orr, is as follows:

During the recent visit of the large and important European cotton delegation to the United States much stress was laid upon the necessity for improvement in the growing, handling, and marketing of American cotton, and the opinion was freely expressed that there was a great opportunity for a valuable and probably very profitable experiment in the application to this great cotton-raising business of adequate capital combined with up-to-date agricultural, mechanical, and commercial methods.

On visiting Mr. Crawford's plantation at Heathman, Miss., the delegation were informed by the proprietor, who has been a successful cotton planter and is now anxious to retire from active business pursuits, of his intention to offer his valuable estate for sale, and subsequent negotiations resulted in his giving an option for its purchase. This option will expire on January 15. The opportunity is of so exceptional a character that we think full consideration should be given to it. The delegates generally admitted that Heathman was the most up-to-date plantation which had come under notice. This estate was visited last year for the second time by the members of the Lancashire Private Cotton Investigation Commission, who strongly recommended its purchase to the promoters if it could be secured at a reasonable price. Definite steps, however, were held in abeyance with the object of broadening the interest in England and of enlisting the co-operation of Continental spinners. Mr. Arthur Kuffler, the Austrian member of the International Committee, has inspected the estate, and was impressed with its advantages, and he believes that the Continental spinners would be willing to invest an amount proportionate to their number of spindles.

It is desirable that, should a limited company be formed, intended holdings by companies or firms should be comparatively small, but that all should co-operate in the venture so as to broaden the basis of interest. It is fully believed that the investment would realize a 10 per cent. return, but it is of greater importance to demonstrate practically and with as little delay as possible what can be achieved with the improvements suggested at the Vienna International Cotton Congress and the Atlanta Conference of Cotton Growers, Spinners, and Manufacturers. Land values in the South have considerably increased during recent years, and with further development in cultivation this estate would probably represent a much higher value a few years hence.

The purchase of this estate, far from being antagonistic to the work carried on by the British and Continental cotton-growing associations, would be the means of obtaining reliable information and experience in the cultivation of cotton in that part of the world from which the trade at present draws the chief portion of its supply, and it would undoubtedly be a most valuable aid in the work of cotton-growing which the European nations are so wisely fostering. It would also afford, when improved machinery was introduced, a most valuable demonstration to the American planter of the great economies it is possible to effect in the ginning and baling of their valuable product. It is admitted on all hands that present methods of ginning and baling are wasteful.

There is no school like the school of experience and we are glad the European spinners recognize that truth. Their attitude so far has scarcely been in keeping with their reputation as thoroughly practical men of affairs. Although wholly lacking in experience in the growing of cotton they have criticised the methods of American planters with a freedom that would be warranted only by a thorough familiarity with all the practical details of the business. Like the graduate on commencement day, they have defined defects and prescribed remedies with an assurance in inverse proportion to their practical knowledge of the subject. It is but two years since the first of that series of cotton conferences which have afforded European spinners an opportunity to meet the cotton planters and state their views of cot-

ton growing. During that short time the planters have been too much astonished by the criticism and suggestions to feel any irritation. With human nature as it is, however, nothing is more certain than that a continuance of this general denunciation of present methods of raising American cotton by those who have had no experience in the business would cause a strong feeling of resentment among Southern planters.

For this reason we welcome the plan formed by European spinners to go into the business of cotton raising and put their theories to a practical test.

The circular announcing the plan to acquire a cotton plantation in America has been quite generally accepted in England as proof that the English cotton spinners have lost what little confidence they ever possessed in the cotton producing possibilities of Africa and other British colonies. This is particularly unfortunate for the British Cotton Growing Association at a time when it finds its work hampered by lack of funds and is making urgent appeals for financial aid as a means of saving the English cotton industry from the American cotton monopoly. The following reference to this phase of the situation is taken from the "Textile Mercury," of Manchester:

> The promoters of the establishment of Lancashire-owned cotton farms in the United States assure us that the work is not being carried on in any spirit antagonistic to the objects of the British Cotton-Growing Association. While it may not be purposely antagonistic to the Colonial cotton movement, it may nevertheless tend to lessen the interest that has been directed towards the development of Colonial "cotton belts," at so much trouble, expense, and public zeal. We hope, however, that such will not prove to be the case. . . .
>
> Naturally, something in the way of an apology is offered to British and European cotton-growing associations. The promoters of the new scheme argue that the management of an estate in America will be the means of obtaining information and experience in the cultivation of cotton. It will also afford (they say) "a valuable demonstration to the American planter of the great economies it is possible to effect in the ginning and baling of their valuable product." These are good reasons, but they are probably not the only ones; and, after all, the British Cotton-Growing Association would prefer, no doubt, that such schemes were more associated with opportunities in Colonial fields. On the other hand, it may be argued that the Colonial conditions are not ripe for such a project; and accordingly, while our King's dominions over-sea are being made more accessible to the requirements of Lancashire spinners, the proposal to purchase cotton farms in the United States will probably commend itself to those who are acquainted with the objections which have long been associated with the marketing of American staples.
>
> Nevertheless, the promoters of this new scheme must be prepared to find it regarded in Lancashire as a "slap in the face" for the British Cotton-Growing Association; while in London and the southern counties it will be used to point the ever-ready gibe and justify the all-too-common sneer at Lancashire as a county more devoted to money-spinning than to patriotism!

Nothing could be more unjust than for London to sneer at Lancashire spinners because the latter recognize the superior advantages of America for growing cotton. The world has free trade in cotton, and unless there is some hidden plan to confine the use of British colonial cotton to British mills, any increase of the cotton crop in Africa or elsewhere will benefit the American and English trades in the same degree. Under these conditions the Lancashire spinners, in directing their attention to the development of cotton growing along the line of least resistance, are showing themselves to be, not lacking in patriotism, but simply possessed of ordinary common sense. This is the course we have urged and it is gratifying to have such proof as the spinners' circular supplies that the cotton trade of Lancashire agrees with us. Under these circumstances we may be pardoned for giving here the following extracts from our columns over two years ago:

> Cotton cannot be raised in Europe, and to the European cotton spinner it makes no difference where he gets his supply of raw material, so long as he gets it. As well in Texas as in Togo; in Mississippi as in Madagascar; in South Carolina as in that Grave of the White Man, Sierra Leone. There being no advantage in colonial cotton as such, the question of increasing the supply is reduced to the simple problem of raising cotton where the required quality and quantity can be produced at the lowest cost. That locality is found in our Southern States. . . . There is no more justification for asking the cotton manufacturer and operatives of Europe to bear the cost of these experiments (in raising colonial cotton) than there is for a similar request to the cotton manufacturers and operatives of the United States. The efforts of manufacturers and of all others engaged in the work of today should be directed towards producing cotton as they produce yarn and cloth, along the line of least resistance, which in the

case of cotton is found in the Southern States. Not until the possibilities of raising cotton here are exhausted, and the price has been raised sufficiently high, can cotton raising in less favored districts be commercially successful.

Reference is made in the English spinners' circular to one feature of the plan that deserves more consideration than the promoters may have given to it. They state "it is desirable that, should a limited company be formed, intended holdings by companies or firms should be comparatively small." We venture to suggest that if a limited company (corporation) is formed by Lancashire spinners to engage in cotton growing in America it is very desirable that such company should be an American corporation, organized under the laws of some of the States.

It is surely not necessary to dwell on the obvious advantages of an American corporation and on the objections to a British or other foreign corporation for growing cotton in the United States. Opposition to the control of American cotton fields by foreign corporations has already been stated by men prominent in the South. Such opposition, which we are far from considering unwarranted, can be disarmed by the Lancashire spinners by forming their corporation under the laws of this country. In any event it will be subjected to the control of our laws. A word to the wise is sufficient. The commendable disposition shown by the English spinners to develop cotton growing along the lines of least resistance strengthens our hope that they will follow the same lines in forming their limited company.

Public Libraries and Textile Mills.

On the principle that a public library should be adapted to the needs of the community in which it is situated, William Walsh, librarian at Lawrence, Mass., is making special efforts to make his library useful to the large population employed in the textile mills of that city. A textile department has been organized, and all literature relating to textile manufacturing has been placed in a separate room. Lists of these books have been posted in various places in the city, and the librarian has spoken before the labor union, explaining the method of using the facilities of his library. This plan cannot fail to be of value not only in itself but in connection with the new textile school at Lawrence, the object of which is to reach those in the mill having the least knowledge of the technical details of manufacturing and who, consequently, are in the greatest need of instruction.

The Trade Agreement with France.

The agreement between France and the United States which went into effect the first of this month, February, 1908, should not be confused with such agreements as the one made with Germany last year. Section 3 of the Dingley tariff law authorizes the President to grant certain specified and lower rates on various products, the most important of which is champagne, from such countries as may make reciprocal and equivalent concessions" to the United States. Acting under this section the President has granted the lower rates on all French champagne and sparkling wines in return for which France admits at her minimum rates, coffee, chocolate, vanilla, canned meats and certain fruits from the United States and Porto Rico. In other words the French are to drink Porto Rico coffee, and the Americans French champagne at lower rates.

The German agreement was not specifically authorized by any statute and its legality is open to question. It has been extended to all other countries and now applies to all imports into the United States.

The world's supply of raw silk for the year ending June 30, 1907, is estimated to be 42 million pounds, of which the United States took about 38 per cent.

The first cotton grown in the New World was raised on the peninsula between the Delaware and Chesapeake Bays. In 1621 experiments in raising cotton were made in Virginia, Louisiana, Georgia and the Carolinas and until after the Revolution the product was used wholly for domestic uses. The first shipment to a European port was made of eight bales from Charleston in 1784.

The Invoice and Mill Weights of Export Cotton.

Editor Textile World Record:

Seeing by the last issue of the Textile World Record that you have been endeavoring to prevent a wrong impression gaining unnecessary circulation and importance owing to a recent utterance of Mr. Thomas Coates in Manchester, Eng., I thought the enclosed statement, showing the actual result of a purchase of 200 bales of "cif" cotton through the Cotton Buying Company of England, of which Mr. Coates is chairman, for a cotton spinning mill at which he was a director at the time, might interest you, and from which you will see the following results:

AS INVOICED.

Gross weight,		102,421 lbs.
Tare, bands,	1,715 lbs.	
bagging,	3,597 "	5,312 "
Net weight invoiced,		97,109 lbs.

AS WEIGHED AT THE MILL.

Gross weight,		102,480 lbs.
Tare: bands,	1,281 lbs.	
bagging,	2,931 "	4,212 "
Net weight at mill,		98,268 lbs.
Overweight not paid for		1,159 "

In face of these facts, Mr. Thomas Coates should not "kick" but "ca quiet," or he may do the Lancashire spinners more harm than good. The foregoing is an average result of thousands of bales purchased for the aforementioned cotton spinning mills by the writer, and is not an isolated case. Mr. Coates also inferred that there was a greater quantity of bagging put on the bales than the stipulated amount, whereas, if the figures in the statement are dissected it will be found actual results are the direct opposite. The weight of bagging on the 200 bales in question was actually 2,931 pounds, as weighed at the mill after the bales had been used, whereas the spinner had been allowed 3,597 pounds for weight of bagging, showing a clear gain to the spinner of 666 pounds of cotton through insufficient quantity of bagging.

Of course if Mr. Coates considers he is entitled to more overweight on his purchases of "cif" cotton, nobody should blame him for endeavoring to obtain "something for nothing" as you aptly put it, or if he is gaining greater business notoriety among his friends for his shrewdness in making these "discoveries in Amerikey" on his recent visit, grant him any satisfaction that may be derived therefrom, though at the same time "those who live in glass houses should not throw stones."

British-American.

This letter was accompanied by a duplicate invoice of the 200 bales of cotton, and the financial report of the mill, showing Mr. Coates listed as a director. We withhold the names of the mill, the shipping firm and our correspondent because the question involved should be raised above personalities and considered in connection with the efforts to correct abuses in the cotton trade.

This lot of cotton was shipped from Mobile by the SS "Huntcliffe" in 1896 and sold to the Oldham mill through the Cotton Buying Company, acting as brokers. It is proof that the "cif and six" contract, under which cotton is sold for export may work to the profit of the foreign buyer and to the loss of the American seller.

The actual gain to the Oldham mill on this particular transaction was 1.2 per cent. This rate of shortage of tare and consequent overweight of cotton would mean in the aggregate a large annual profit even for this single mill at Oldham with its 92,820 spinning spindles. Applied to the total export trade in American cotton it gives results calculated to stagger American shippers. Take last year for illustration, when the United States sold 8,721,303 bales of cotton valued at $482,081,527 for export. At the rate disclosed by the invoice of 200 bales sold to Mr. Coates' mill, the loss on that year's business to American shippers, and consequent gain to foreign buyers, would amount to 104,655 bales, valued at $5,785,000. The actual loss to the United States may have been more or less than this, but the estimate illustrates the possibilities under the present contracts and the need for investigation and reform.

What is needed now is comparative statistics of the invoiced and mill weights of American cotton used in foreign mills. The American seller has no means of checking his invoices with the weights at the mill, and it is only by such checking that the gain or loss to buyer or seller can be determined. There is probably no man in a better position to supply information bearing on this point than Mr. Coates. As Chairman of the Cotton Buying Company of England and a director in Lancashire mills he has at his command the figures covering a large volume of business during a long series of years. He can give this data, as we have done, without disclosing names, and thus show beyond question to what extent the present system operates to the profit or loss of either buyer or seller.

We invite him to do this. The American

cotton trade in the South have given him and all who visited the cotton belt, every facility to inspect American methods of baling, compressing, weighing and invoicing cotton. The time has now come for Lancashire to be equally frank, in order that any abuses in the trade may be located before attempts are made to correct them.

We regret very much that this, the only proper course, did not occur to Mr. Coates before he made his Manchester speech. Cotton conferences cannot be held fast enough to undo the harm caused by such intemperate and biased comments on established trade methods.

Under the German Agreement.

The imports of textile goods from Germany for the first six months under the North agreement and for the corresponding six months of the previous year makes the following showing:

TEXTILE IMPORTS FROM GERMANY FOR SIX MONTHS ENDING DECEMBER.

	1906	1907
Cotton Cloths, sq. yds.	1,669,294	1,772,882
value	$291,042	$302,145
per yd.	$.174	$.170
Linen Cloths, sq. yds.	5,692,889	5,096,975
value	$1,182,504	$1,165,865
per yd.	$.208	$.229
Wool Cloths, lbs.	1,203,345	1,110,567
value	$1,138,524	$1,057,982
per lb.	$.947	$.953
Wool Dress Goods, sq. yds.	4,367,263	5,793,224
value	$1,040,339	$1,478,278
per yd.	$.239	$.255
Silk Goods, value	$3,821,984	$4,595,766
Cotton Knit Goods, value	$3,572,932	$4,126,774
Cotton Laces, &c. value	$2,848,795	$2,764,810
Total value, six months	$13,896,120	$15,491,620

The increase in the total value is significant, but these figures deserve attention, not because of the light they shed on the effect of the trade agreement with Germany, but as showing the heavy imports of textile manufactures from this one country out of many. It is somewhat of an anomaly that with textile mills in want of work the United States should be giving work to German mills at the rate of $31,000,000 a year, foreign valuation.

Patents and Domestic Industry.

In the few weeks since the new British patent law went into effect on Jan. 1 a number of foreign firms have taken steps to establish works in England in order to avoid the cancellation of their British patents under the compulsory working clause. Among these changes are the following:

1. An American manufacturer of safety razors is to establish works at Sheffield employing 500 hands.

2. The Hoechst Farbwerke, German manufacturers of artificial dyestuffs are to establish works at Ellesmere Port, near Chester, Eng. One of the first products to be turned out is synthetic indigo.

3. The Farbenfabriken of Elberfeld Co., another of the great German dyestuff companies is to establish works near Manchester, Eng., for the manufacture of all of its products.

4. The J. P. Bemberg Aktien Gesellschaft, of Aehde, near Barmen-Rittenhausen, Germany, is to establish branch works in England for the production of artificial silk.

All of these four enterprises are based on patented processes. Unless these processes are worked on British territory the British patents may be revoked and the inventions given to the British public under the following section of the new patent law:

27.—(1) At any time not less than four years after the date of a patent, and not less than one year after the passing of this Act, any person may apply to the comptroller for the revocation of the patent on the ground that the patented article or process is manufactured or carried on exclusively or mainly outside the United Kingdom.

(2) The comptroller shall consider the application, and if after enquiry he is satisfied that the allegations contained therein are correct, then, subject to the provisions of this section, and unless the patentee proves that the patented article or process is manufactured or carried on to an adequate extent in the United Kingdom, or gives satisfactory reasons why the article or process is not so manufactured or carried on, the comptroller may make an order revoking the patent either—

(a) forthwith; or

(b) after such reasonable interval as may be specified in the order, unless in the meantime it is shown to his satisfaction that the patented article or process is manufactured or carried on within the United Kingdom to an adequate extent.

There are reports of other transfers of foreign industries to England besides those

mentioned, making it certain that the clause requiring the working of British patents on British territory will result immediately in a large increase in British industry.

The operation of this law is of especial interest to the United States, where our patent laws give unlimited protection to foreign industries, as the British law did previous to Jan. 1. An amendment similar to the section of the British Act given above would work here as it is now working in Great Britain, and cause a rush of foreign manufacturers to establish works in the United States. How long is it going to take the law makers at Washington to realize this fact and act accordingly? How long will they let United States laws protect foreign industries and suppress American industries?

Humidity in Textile Mills.

Six questions recently received from an English correspondent brings up an important question for consideration. They related to the humidification of air in American mills and were prompted by an investigation of humidity in weaving sheds now being made by a committee appointed by the British Home Office. The six questions are as follows:

1. Do your cotton weaving factories artificially humidify the air?
2. If artificial humidity is used, is it limited by a legal enactment, and if so what is the scale allowed?
3. What temperature is usually worked at, and what relative humidity is found to be the best? Can you give me hygrometrical readings (of various States) as registered in weaving factories?
4. What is the standard of ventilation in your weaving factories? In this country a factory is considered to be well ventilated when the carbon dioxide (CO_2) in the air does not exceed 9 volumes in 10,000 volumes, but this production must not be exceeded in any weaving place where artificial humidity is used.
5. On the hot days of the summer months what is the highest temperature in your weaving factories, and also the relative humidity? How long will these hot days continue during a normal summer?
6. Have you any system of cooling the air, and if so what is it, during these times?

These questions, coming as they do from Lancashire where the modern system of cotton manufacturing originated and has reached its highest development, emphasize in a most striking manner how far the United States is behind England in this detail of the industry, the regulation of humidity in the mills.

In reply to our English correspondent we had to inform him that our cotton mills do humidify the air artificially; that there is no legal enactment in any of the states regulating the degree of humidity; that there is no record of observations or tests covering any considerable number of localities or mills to determine what relative humidity is the best; that no hygrometrical readings are regularly registered according to law in the mills of any state; that there is no definite legal standard for regulating the ventilation of American mills; and that the air of our mills is artificially cooled only as an incidental result of air moistening.

Our replies gave of necessity so little information about this important subject that we were led to reverse the questions and seek answers to them as related to the industry in general and not to the American branch alone. This led us at once to the accumulated experience of Lancashire where nearly half of the world's cotton spindles are grouped within a radius of fifty miles, where a century and a quarter of experience has brought the processes of manufacturing cotton to the highest efficiency, where employers and employes have become organized as in no other part of the world, and where as a result of this organization and of many years of conflict and dispute the legal regulation of conditions affecting the efficiency and health of the operatives has been extended to every department of the industry.

It may be well first to consider briefly the general principles of air moistening, which, although simple, are, nevertheless, frequently misunderstood by mill men. Air is capable of holding in solution an amount of moisture that increases with the temperature. Any excess of moisture above this limit is precipitated, and the temperature at which precipitation takes place is called the dew point. At this dew point the air is said to be saturated. For ex-

ample, air at a temperature of 30° F. will hold in suspension 2 grains of water per cubic foot; at 70° F. it will hold 8 grains per cubic foot without precipitation. The degree of moisture in the air is termed "humidity," and is expressed by percentage based on the total amount capable of being held in suspension. Thus if air at 30° F. has 2 grains of water per cubic foot, it contains all that can be held in suspension and the humidity is 100 per cent. If air at this temperature, 30° F., has 1 grain of water per cubic foot it holds one-half of its maximum water-carrying capacity and the humidity is 50 per cent. If, on the other hand, the air at 70° F. is carrying 8 grains of water per cubic foot, which is the maximum at that temperature, the humidity is 100 per cent.; if the moisture drops to 4 grains, the humidity is 50 per cent.; at 2 grains per cubic foot, the humidity is 25 per cent.; and at 1 grain, it is 12 1/2 per cent.

From this it is seen that a high percentage of humidity does not necessarily mean a corresponding quantity of water per cubic foot.

In the cases already cited, 2 grains per cubic foot at 30° F. means saturated air, or a humidity of 100 per cent., while 2 grains per cubic foot at 70° F. is equal to a humidity of only 25 per cent. These illustrations may be made clearer by the following table:

Humidity	Grains per cubic foot at 30° F.	at 70° F.
100 %	2	8
50 %	1	4
25 %	½	2
12½%	¼	1

The tendency is for air to absorb moisture and become saturated when brought in contact with water. The lower the degree of humidity in the air and the higher the temperature, the stronger is this water-absorbing tendency. Thus air at 70° F., with a humidity of 50 per cent., will absorb moisture more rapidly than with the humidity at 75 per cent.

The humidity of the air has an important influence on the cotton fiber in the processes of manufacturing. This is illustrated by the results of tests made recently for F. Scarisbrick, president of the Blackburn (Eng.) District Managers' Mutual Association and which are found in his recent work, "Steaming in Weaving Sheds," from which the following is taken:

I have not been able to find any tests of unsized or sized yarns in sufficient detail to satisfy me, and as such tests require special apparatus I, therefore, requested Mr. W. F. Whittaker of Darwen, a County Council scholar, now at the Manchester School of Technology, to make several series of tests for me.

A balance was arranged with the weighing pan inside a drying oven, while the other pan was outside. It was thus possible to do the weighing without removing the yarn from the oven.

A single thread testing machine made by H. Baer & Co., Zurich, was used to ascertain the breaking strain and the length of stretch with gradually decreasing amounts of moisture. The length of yarn tested in each case was 18 inches.

The length of stretch is the distance the yarn elongates from the commencement of the test to when it breaks.

SUMMARY OF THE TESTS OF UNSIZED YARN.

COUNTS, 34.7.

Percentage of moisture	Breaking strain in ounces.	Length of stretch in inches.	Loss of strength.	Loss of stretch.
6.48	6.435	1.087	....%	....%
4.41	5.0	.772	22.3 "	28.8 "
2.39	4.775	.681	25.8 "	37.4 "
.45	4.78	.65	25.7 "	40.2 "
Dry	4.215	.625	34.5 "	42.5 "

SUMMARY OF THE TESTS ON 36S YARN SIZED WITH 16.5 PER CENT OF SIZE.

Percentage of moisture	Breaking strain in ounces.	Length of stretch in inches.	Loss of strength.	Loss of stretch.
10.18	7.225	.65	....%	....%
8.02	6.55	.569	9.4 "	12.6 "
5.94	5.925	.4625	18.0 "	28.8 "
3.94	5.985	.412	17.2 "	36.6 "
2.02	6.09	.369	15.8 "	43.1 "
Dry	4.77	.288	34. "	55.7 "

The two summaries clearly show that there is a decided decrease in the "strength" and "stretch" of yarn as the percentage of moisture decreases.

The percentages of moisture given in this extract are based on the dry weight of the cotton and must not be confused with the percentage of humidity in the air. They illustrate, however, the advantage of moisture in the air of cotton mills because the presence of moisture in the air necessarily means its presence in the cotton.

There are various ways of moistening artificially the air in mills, probably the simplest and most primitive being that called "degging," still practiced to a limited extent in

England, and which consists of sprinkling the mill floor with water, which then evaporates. Mr. Scarisbrick gives this account of an interesting case of "degging":

There are two classes of cotton factories—the humid sheds and dry sheds. A dry, or non-humid, shed is generally considered to be one into which moisture is not introduced artificially. It must not be forgotten, however, that steam jets are not the only means of adding moisture to the atmosphere. Let me give an instance of what occurred in a "dry" shed during the week ending January 6th, 1907. It was the first week of the severe cold weather during the past winter. Up to this date the weavers at the shed I refer to had made no complaint as to bad material. A few days after the commencement of the cold frosty weather they went to the office and threatened to go "on strike" if they were not supplied with "better stuff." The manager, being an experienced and tactful sort of man, told the weavers that they were now weaving the same beams as were in the looms during the previous week, and that the only thing that had changed was the weather. The weavers argued that "gradely stuff" would weave in any sort of weather. The manager said the cold weather had caused the beams to become too dry, and suggested that he be allowed to "deg" the floor with water.

The weavers objected to this, as "degging" with cold water would cause them to feel "starved." The manager then asked if he might "deg" with hot water. This was agreed to. Fifty gallons of hot water were sprinkled on the floor of the dry shed. In less than half an hour there was a decided improvement in the weaving. This improvement was maintained until dinner-time. During the afternoon the weaving began to worsen, owing to the air in the shed again becoming dry. Then the weavers requested the manager to put more hot water on the floor.

After this the floor was "degged" three times a day, i. e., before breakfast, during the forenoon, and in the afternoon. At each operation 50 gallons of water were used. Thus by "degging" 150 gallons of water per day on the floor of a dry shed a strike was averted. When it is taken into consideration that the weavers who were agreeable to "degging" with hot water would not allow steam to be infused into the shed, it shows that the objection to steaming is based more on sentiment than reason. This shed now has an arrangement by which the condensed water from the tape-frame cylinders can be drawn from a tap at any time to "deg" the floor. If the frequency with which it is taken advantage of is any criterion, this arrangement is appreciated by the weavers.

Another English method of air moistening, similar to "degging," is called "wet rags," and consists in scattering around the work room rags saturated with water, which evaporates and moistens the air. Air is also moistened by blowing steam into the work rooms, this being popularly known as "steaming," and for the abolition of which there is a movement now underway in England. The sentiment among the operatives against steaming is indicated by a ballot of the English weavers taken by the Northern Counties' Amalgamated Association of Weavers, and which resulted as follows:

For steaming	3,094 votes
Against steaming	68,154 votes
No opinion	1,221 votes
	72,469 votes

The overwhelming majority against steaming is based on the conviction that the practice is injurious to the health of the operatives. Regardless of whether this is true or not, the fact that 94 per cent. of the English weavers think it is, must necessarily prove an influential factor in deciding the question in a country ruled so largely by public opinion. Naturally in the public discussion of a question involving the health of the operatives and which can be solved only by those experienced in the practice of medicine after a careful study of vital statistics covering long periods among mill operatives, there has been a great deal of idle talk deserving of no consideration except as it has influenced public sentiment. The question as to the effect of degging, steaming and other methods of air moistening on the health of the operatives is one that will not down. It will never be settled until it is settled right. What are the facts? A commendable attempt to answer that question has been made by Mr. Scarisbrick, who secured the following statement from Dr. F. G. Haworth, health officer at Darwen, England:

Health Department, Municipal Offices,
Darwen, March, 1907.

Dear Sir: Before I touch the question of your letter as to the introduction of steam into weaving sheds being injurious or not, let me make perfectly clear the position which carbonic acid gas plays in the economy of Nature.

In the purest mountain air the average amount of this gas is three parts in 10,000. The amount present in ordinary atmospheric air is four parts in 10,000; in overcrowded rooms it often reaches as high as 30 parts per 10,000. Sanitarians have established a basis whereon any amount over 6 parts in 10,000 parts is regarded as indicating concomitant and injurious organic impurities of which carbonic acid gas is the necessary yet harmless in-

dex. This gas per se, does not begin to be injurious until a proportion of about 150 parts in 10,000 is reached.

The carbonic acid gas in the atmosphere is contributed to by respiration—this accounts for its presence in crowded assemblies—combustion, and putrefaction, and is diminished by vegetation, and dispersed by rain and high winds. So that when I speak of carbonic acid gas and its deleterious effects, I really have in mind not a gas, but organic impurities from various sources which are decidedly harmful, and which increase pro rata with the gas.

We have, therefore, in rooms in which large numbers of people are at work an atmosphere impregnated with impurities from imperfect combustion of gas, from the lungs, and from the skins of the persons themselves; but more vital in consequence are the germs or micro-organisms which are found in large numbers in the vicinity of the people. Some micro-organisms play a useful part in nature's work; others are injurious. Such are the bacilli of consumption and diphtheria and the coccus of pneumonia, which from recent investigation have been found in the saliva, the mouth, and the throats of even healthy individuals.

The following table shows the results of analysis of airs by Drs. Carnelly, Haldane, and Anderson, and confirms this point I am making:

Cubic Feet Per Head	Temperature	Co_2 per 1,000 vols.	Organic matter.	Microbes Per cubic foot.
100-180	55° F.	1.15	15.1	2267
180-260	55° F.	1.07	15.1	1388
260-340	53° F.	1.03	11.8	906
340-500	57° F.	0.93	8.4	1190
500-1000	54° F.	0.86	5.6	170
1000-2500	53° F.	0.67	3.9	255
2500-4000	57° F.	0.79	5.0	368

To rid the air of these impurities perfect ventilation is necessary.

Pollution of the air with inorganic impurities, such as coal particles or stone dust, or any material which has sharp, gritty ends, will give rise to a disease of the lungs called fibroid consumption, or coal-miner's lung. But if these heavy particles of dust are exposed to moist air they are removed from a state of suspension and rendered practically harmless. So it is with the particles of china clay, fluff, etc., found flying about in a weaving shed. Even if harmless when dry, it is certain they are when moist. So it is with the micro-organisms: they become entangled, as it were, with the dust, etc., and from a humid atmosphere become deposited by force of gravity on the ground and machinery, and are thus prevented from being inhaled.

It may be looked upon as an axiom that "the sputum of a consumptive person is always a source of danger as long as it is dry, to be wafted about by every current of air, but is perfectly safe when wet or weighed down with moisture, artificial or otherwise."

From a sanitary point of view this danger is a sufficient reason for the artificial introduction of moisture. The question may be asked, "What amount of humidity is necessary for this purpose which will still be within the domain of health, comfort, and practical working conditions?" From a careful study of the matter I have formed the opinion that the special Act regulating this thing meets all requirements.

In following out the more recent controversy on steaming, I have been struck with the secondary position which has been assigned to health, and also that medical opinion is regarded as having neither importance nor value. This of necessity follows an enquiry on scientific lines which are beyond the comprehension of persons not specially educated and fitted for such enquiry.

Such diseases as rheumatism, bronchitis, pneumonia and consumption are usually attributed to the damp atmosphere of an artificially-humidified shed. It is not because this is true, but because so many persons in the industry think it is true, that it has to be considered; in fact, to follow it out to its logical conclusion would be to extend the list. Let us, therefore, look further into the whys and wherefores.

Pneumonia, usually attributed to "catching cold," and consumption to hereditary influence, are both the direct result of the action of micro-organisms of very particular character, both of which have been isolated and cultivated. Hereditary influence predisposes in one case, and chill or prolonged exposure to cold in the other, by lowering the vitality of the lungs to such an extent as to form a special breeding ground in them for these infinitesimal microbes. Since the atmosphere of weaving sheds is of a more equable character (being warmer) than the outside air, and the dampness, as indicated by the amount of relative humidity, is, as a rule, less than that outside, in the absence of the actual bacteria, the conditions obtaining in the weaving sheds are more in the way of prevention of these complaints than the condition outside.

Bronchitis is the result of exposure, and, in particular, exposure to extremes of temperature, either of a short or long duration. It may be the result of breathing irritating air or irritating particles in the air; it is more likely to come from the sudden changes from a warm interior to a cold exterior, especially if parts of the body are left unprotected. This is where poverty of clothing applies, because it will imply poverty in other directions. Rheumatism, of which we hear so much in connection with the steaming question, is a disease associated with poverty, in which cold and damp act as direct causative agents, and in which heredity plays a predisposing part. It is really a poisoned condition of the blood, this condition being brought about in the body by reason of the imperfect changes which take place, and in which the alterations in the joints are the external manifestation as well as the result of such perfect metabolic changes.

It is evident that dampness of itself is not the direct cause of these complaints. If it were so we should find them more common in out-door workers than is the case.

In my position as Medical Officer of Health, I have for some years ascertained the occupation followed by all those who have died during the previous year, and I have failed to connect these deaths with the humidity in steaming sheds. This humidity is relatively less than the outside air,

and I want to impress this fact upon you. With the necessary increase of temperature in the shed the heated air is capable of taking up more moisture than the cooler air outside, and to make up for the apparent loss of moisture steam has to be blown in to prevent the air getting too dry. The question has been asked, "If the outside air contains more moisture than the inside air, why not blow this outside air directly into the shed?" and on the face of it there appears a certain amount of reason, except that by doing so the temperature in the shed would be reduced so low as to make work physically difficult owing to the cold. An equable temperature is a necessity, and therefore steam or moisture is an equal necessity.

To sum up, in my opinion the introduction of moisture into the air of weaving sheds by artificial means is calculated to benefit the workers providing the relative humidity is kept within reasonable limits of the outside air; that its action on suspended particles, whether dust or microbes, is beneficial; that the workers therein are not more susceptible to such diseases as pneumonia, bronchitis, consumption and rheumatism than other people, in which opinion statistics bear me out: and that the agitation against its use has its foundation in a misconception of the whole matter.

I am, yours sincerely,

F. G. Haworth.

Dr. Haworth, it will be noticed, qualifies his approval of air-moistening by the clause, "providing the relative humidity is kept within reasonable limits of the outside air."

MAXIMUM LEGAL LIMITS OF HUMIDITY.

Grains of Vapor per Cubic foot of air.	Thermometers. Dry Bulb °F.	Wet Bulb °F.	Percentage of Humidity. Saturation=100.
1.9	35	33	80
2.0	36	34	82
2.1	37	35	83
2.2	38	36	83
2.3	39	37	84
2.4	40	38	84
2.5	41	39	84
2.6	42	40	85
2.7	43	41	84
2.8	44	42	84
2.9	45	43	85
3.1	46	44	86
3.2	47	45	86
3.3	48	46	86
3.4	49	47	86
3.5	50	48	86
3.6	51	49	86
3.8	52	50	86
3.9	53	51	86
4.1	54	52	86
4.2	55	53	87
4.4	56	54	87
4.5	57	55	87
4.7	58	56	87
4.9	59	57	88
5.1	60	58	88
5.2	61	59	88
5.4	62	60	88
5.6	63	61	88
5.8	64	62	88
6.0	65	63	88
6.2	66	64	88
6.4	67	65	88
6.6	68	66	88
6.9	69	67	88
7.1	70	68	88
7.1	71	68.5	85.5
7.1	72	69	84
7.4	73	70	84
7.4	74	70.5	81.5
7.65	75	71.5	81.5
7.7	76	72	79
8.0	77	73	79
8.0	78	73.5	77
8.25	79	74.5	77.5
8.55	80	75.5	77.5
8.6	81	76	76
8.65	82	76.5	74
8.85	83	77.5	74
8.9	84	78	72
9.2	85	79	72
9.5	86	80	72
9.55	87	80.5	71
9.9	88	81.5	71
10.25	89	82.5	71
10.3	90	83	69
10.35	91	83.5	68
10.7	92	84.5	68
11.0	93	85.5	68
11.1	94	86	66
11.5	95	87	66
11.8	96	88	66
11.9	97	88.5	65.5
12.0	98	89	64
12.3	99	90	64
12.7	100	91	64

The English Factory Act of 1889 defined the limits of moisture that would be permitted in the air of factories. Whether these legal limits were properly defined or not, the fact remains that for nineteen years the English law has said: "Thus far shall you go in moistening the air of factories, and no farther." The maximum limits of humidity allowed by the Factory Act are given in the accompanying table.

The legal limits of humidity under the Factory Act and the point of saturation are also shown in the diagram, which also indicates the grains of water per cubic foot.

The method of determining and recording the humidity of factories is prescribed by the Factory Act as follows:

1. In every cotton cloth factory, for the purpose of recording the humidity of the atmosphere and the temperature there must be provided, maintained, and kept in correct working order two sets of standardized wet and dry bulb thermometers.

2. The following regulations shall be observed with reference to the employment of such thermometers:—

(A) One set of thermometers is to be fixed in the center and one at the side of the factory, or in such other position as is indicated or sanctioned by an inspector, so as to be plainly visible to the workers:

(B) The occupier or manager or person for the time being in charge of the factory shall read the thermometer thrice in the day, namely, between seven and eight o'clock in the forenoon, between ten and eleven 'clock in the forenoon, and between three and four o'clock in the afternoon, on any day in which any workers are employed in the factory, and shall record the readings of each thermometer at each of these times on a form provided for the purpose for each set of thermometers in accordance with the Form of Record and the regulations contained in the Fourth Schedule of this Act.

(C) The form in which the readings of each thermometer are to be recorded must be kept hung up near the thermometers, and after being duly filled up, must be forwarded at the end of each month to the inspector of the district, and a copy must be kept at the factory for reference:

(D) There must be kept hanging up in a frame, and properly glazed, in a conspicuous position and near to each set of thermometers, a copy of the table set out in the Fourth Schedule of this act:

(E) Each form shall be prima facie evidence of the humidity of the atmosphere and temperature in the factory in which the form was hung up.

The vital statistics among English cotton operatives are of interest in connection with the operation of this section of the English Factory Act, although not necessarily conclusive as to the correctness of the legal limits, in view of many other complex factors affecting the death rate.

The mortality statistics for Blackburn, covering practically all the period during which humidity in English mills has been subject to regulation by law, are given by Mr. Scarisbrick as follows:

AVERAGE DEATH RATES AMONG COTTON OPERATIVES FOR THE YEAR 1891-1895.

Age Period	Weavers	Spinners	Winders and Warpers	Carding room hands	Average death rate for whole Borough
15.25	4.3	7.5	4.8	4.2	4.9
25.35	6.4	7.7	8.6	7.9	7.1
35.45	11.9	13.2	12.5	12.5	14.2
45.55	14.0	34.2	25.8	21.7	23.7
55.65	53.2	48.2	42.5	34.5	48.5
65 and upwards	187.2	278.2	186.9	230.7	113.5

1896-1900.

15.25	3.7	3.7	5.4	3.1	4.2
25.35	4.9	7.2	6.1	4.0	6.3
35.45	9.6	10.2	10.8	7.9	12.3
45.55	15.3	23.3	21.6	16.3	20.0
55.65	38.6	23.4	35.6	23.9	45.0
65 and upwards	155.9	193.7	139.1	37.0	107.3

1901-1905.

15.25	2.7	2.7	2.6	2.8	3.7
25.35	3.9	7.7	4.7	2.3	5.6
35.45	6.9	6.9	5.9	5.8	9.5
45.55	13.7	22.3	10.7	16.2	19.2
55.65	34.6	42.4	20.8	15.8	38.9
65 and upwards	106.3	121.4	55.9	19.0	100.7

There are several points worth noting in the above table. First, there is a steady decline in the death-rate of every section of cotton operatives. As the spinners, card-room hands, and winders and warpers have not been working in atmospheres where there is less humidity artificially introduced than in former years, it is evident that their decreased death-rate cannot be due to less "steaming." Secondly, the death-rate of spinners, who work in a dry atmosphere, is higher than that of the weavers, who work in a humid atmosphere. It is also worthy of note that "the death-rate among weavers from the ages of 15 to 55 have been lower than the average death-rates for the whole borough since 1891."

These statistics are not presented here with any idea that they are conclusive as to the effect of air-moistening in mills on the health of the operatives. The area and period covered by the observations are too limited to warrant definite general conclusions. They are valuable, however, as showing that the death rate among English factory operatives shows no increase over the average death rate for the whole of Blackburn. Although they cannot be accepted as conclusive regarding the effects of artificial moistening of air in mills on the health of the operatives, they certainly do not show that this practice of air moistening has had any injurious effect on the physical condition of the workers.

On one point there can be little chance for dispute, namely, the need for regulating

the moisture in mills. Such regulation is of importance not only for the protection of the operatives, but as affecting the efficiency of the mill as regards both the quality of the work and the amount of production. This brings us to a consideration of the relative need of artificial moistening of the air in England and the United States. Mr. Scarisbrick gives the following table showing the relative humidity of the outside air of Blackburn, England, by months for a series of years:

Month	1900	1901	1902	1904	1905	1906
January	95.1	93.9	88.7	94.	89.4	93.4
February	95.5	94.1	91.9	90.3	88.8	88.4
March	85.12	85.7	91.3	86.1	86.2	85.8
April	83.6	76.6	81.3	81.6	83.2	72.5
May	76.9	72.9	81.7	76.6	78.2	83.3
June	79.0	73.6	62.4	76.1	75.3	78.5
July	77.5	77.2	81.08	77.3	76.7	80.3
August	82.8	78.3	85.	81.3	79.2	82.8
September	85.	79.6	82.9	79.6	84.7	79.03
October	90.3	87.1	92.	86.3	83.	85.6
November	90.5	80.8	85.08	91.2	90.1	90.5
December	89.4	91.8	89.5	90.9	91.1	93.09
Yearly Average	85.9	82.6	84.4	84.8	83.8	84.4

The observations of relative humidity in the United States, made under the direction of Willis L. Moore, chief of the United States Weather Bureau, enable comparisons to be made between Blackburn and some of the leading cotton manufacturing sections of the United States. From the report of these observations by the United States Weather Bureau we make the following extract. The period covered is for the 14 years from 1888 to 1901:

MONTHLY AND MEAN RELATIVE HUMIDITY.

	Atlanta, Ga.	Boston, Mass.	Charlotte N. C.
January	76.4	72.1	71.6
February	73.2	71.2	70.
March	69.7	68.2	68.9
April	64.5	65.9	62.2
May	64.1	70.6	65.9
June	70.7	71.6	71.9
July	75.6	71.4	75.1
August	78.3	75.4	77.6
September	73.9	76.9	75.6
October	69.9	74.7	71.
November	73.	75.3	70.7
December	75.5	71.4	72.3
Annual	72.1	72.1	71.1

According to these figures the relative humidity is practically the same for the three cities, Atlanta, Boston and Charlotte. A comparison of the Blackburn and American observations shows that the relative humidity of the outside air is much higher in Lancashire than in this country. The average for the seven years in Blackburn is 84.3, while the average for the 14 years in the three American cities named is 71.8, a difference of 12 1/2 per cent. In this connection it may be of value to note the comparative temperature of the same places. Observations at Blackburn gave the following results:

Year	Average Temperature
1900	47.1° F.
1901	47.3° F.
1902	45.9° F.
1903	46.6° F.
1904	46.4° F.
1905	47.0° F.
1906	46.9° F.
Average for 7 years	46.7° F.

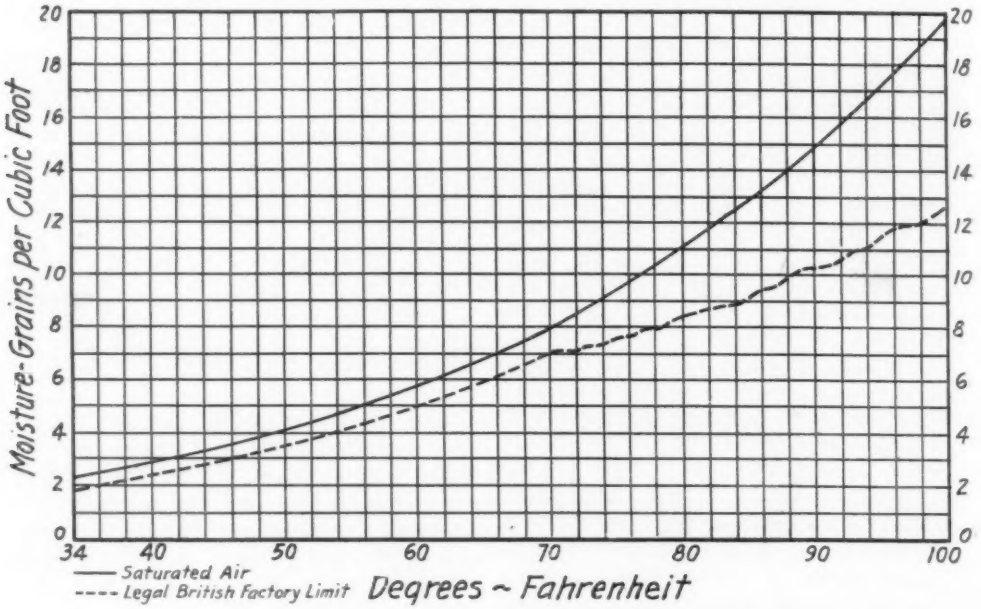
The observations by the United States Weather Bureau give the annual mean maximum and minimum temperature, and from this we have calculated the average. While the method of calculations thus varies between the English and American localities, the variation in the result may be safely assumed to be negligible:

AVERAGE TEMPERATURE.

Atlanta, 1878-1901	61.5° F.
Boston, 1872-1901	49.0° F.
Charlotte, 1878-1901	60.5° F.

An examination of these statistics of relative humidity and temperature makes it clear that there is much greater need for the artificial moistening of air in American mills than in the mills of Lancashire. The relative humidity of Atlanta, Boston and Charlotte averages 12 1/2 per cent. below that of the air at Blackburn, England. This difference must be made up artificially to equalize the atmospheric conditions between the two countries. It is difficult to lay too much em-

phasis on the importance of careful scientific methods in this process of air moistening. The health of the operatives and the efficiency of the mill are involved to a very considerable extent. In spite of these facts the subject is but imperfectly understood by manufacturers; in many mills no attempt is made to study and regulate the moistening of the air in order to protect the operative and obtain the best results; no general rule or standard is accepted by the mills; and the mill manager who realizes the importance of the process and seeks intelligently to determine the facts is the exception to the rule. As for legal regulation, there is none. Massachusetts leads the way in this as in many other similar matters affecting the wise regulation of manufacturing operations, but even in that State there are no specific regulations affecting atmospheric humidity of factories. During the past two years the Massachusetts Board of Health has investigated this question in the course of a general enquiry ordered by the legislature, and from the report recently submitted we make the following extract:



Having considered some of the larger workrooms with especial reference to insufficient light and to the presence of dust, together with other unsanitary influences, attention should be called to the facts concerning the introduction of artificial moisture.

A special study of 80 weave rooms was made. In 57 of these rooms the so-called steam vapor pot system was found. In 18 rooms there was excessive moisture; in 4 of these, excessive heat. In 20 rooms the drosophore or some other modern system (with or without the vapor steam) was found, showing that the modern systems are fast gaining ground. In 9 there was excessive heat, and in no one of these 9 rooms was there any attempt to regulate the temperature; in 7 rooms there were no thermometers.

The investigation showed conclusively that scarcely any effort is made on the part of most manufacturers to ascertain the definite conditions with respect to heat and moisture favorable to weaving, by the use of accurate thermometers and hygrometers. The raising of humidity is done in a very unworkmanlike manner. In 23 of the 80 rooms there were no hygrometers; in 2 rooms where hygrometers were present, they were broken, and in a large number of rooms, 1 or more hygrometers were found to be unserviceable. In the great majority of instances where hygrometers were used the instruments were untrustworthy.

Agents or superintendents of a few corporations, on the other hand, have made careful and extensive inquiries in order to determine "what constitutes the best working conditions and what degree of atmospheric humidity for a given temperature will give the best results," on the ground that the information obtained may be, from a commercial point of view, of great importance.

How far other states are behind even Massachusetts in this matter may be judged from the following extract from the recent report of the New York commissioner of labor, who frankly confesses to the general ignorance of the subject, and bases his plea for regulation on the ground that it is recognized as important abroad:

> The laws (of New York) do not regulate "humidity." This is one of the most important subjects of regulation abroad. As it is an unknown subject to our inspectors it cannot be affirmed that it needs regulating here, but there is a fair presumption that it does.

An agitation of the subject cannot fail to be of great benefit. It will direct the attention of manufacturers to the importance of a process now sadly neglected. It will lead to protection of the health of the operatives. It will result in more perfect goods and in greater efficiency of both operatives and machinery. A better understanding of the question and a more scientific regulation of the process will enable manufacturers to effect large savings in the selection of raw material. Under present haphazard methods there is no question but that for many grades of goods more expensive material is required than would be needed if the atmospheric humidity of the workrooms were kept more uniform and more in conformity with the technical requirements.

Seasonable Fabrics.

COTTON GOODS.

A number of cotton buyers have already reached the market to replenish their stocks, but a feeling seems to exist among most of them that staple cotton goods will be even cheaper than they are today; consequently they are holding off as much as possible, and are not placing any large orders, as they have in former seasons.

The retail merchants have worked very hard to keep their stocks down during the past season when top prices prevailed throughout the various lines, and by doing this they are in a position now to meet the break with a "smile," saying that they are not caught with a heavy stock.

The H. B. Claflin Co. reduced the price on fruit of the loom from 10 1/2 to 9 cents, on Lonsdale 4/4 bleached muslin from 10 1/4 to 8 3/4 cents, and so on throughout their entire domestic stock, with a reduction of 5 to 10 per cent. These quotations have attracted the attention of a great many buyers.

The sheet and pillow case market is in a very good condition; all of the different sizes and brands can be had for immediate delivery. Low end sheets and cases have already been reduced about 10 to 12 1/2 per cent., and the better grades about 5 per cent. Another drop is anticipated in the better grades. The different brands of white sheetings have dropped in proportion to the sheets.

Amoskeag apron ginghams are offered at 6 cents, which is 1 cent under the former price. Deliveries on the well known brands of dress ginghams, such as Toile du Nord, Bates' seersucker and A. F. C. are better this season than they have been in years. Although these goods opened up this season at an advance of 10 to 12 1/2 per cent. over last year, they have sold very freely. Plain colors are very strong.

A number of large orders have been placed for the "Utility" gingham manufactured by the Amoskeag Mills in a large range of desirable patterns at 9 cents a yard.

American prints have been reduced to 6 cents, but are not selling as freely as in former seasons. Another drop of 1/2 cent on these goods would not surprise the trade.

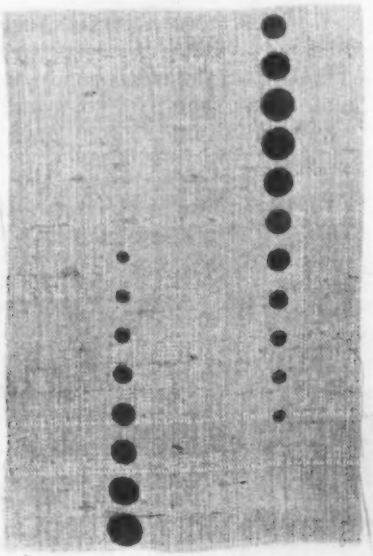
White goods have been very good this month. Reports from the different white goods houses show an increase over last year. Long cloths, nainsooks and India linons have been reduced in price 5 to 7 1/2 per cent. within the last 30 days. Mercerized waistings are coming in strong for spring. It is predicted that this will be a big white goods year, especially on high grade goods.

Printed organdies, batistes and silk tissues are selling very well this season, with prices

about the same as last season. The mills did not receive as many large advance orders as in former years, but feel that the re-order business will be larger than ever.

DRESS GOODS.

The dress goods trade has been very good this season, considering the weather we have had. The regular mid-winter demand for



heavy goods has not fallen off to any extent except with the cutting up trade. The mills are busy now shipping their spring orders. While the spring dress goods business has been good this season, the orders have not been as large as previous seasons. The manufacturers feel confident that the total spring business will be as large as ever.

Panamas, voiles, serges, batistes and wool taffetas will be very popular again this season in all of the latest colors.

There has been a great demand for chiffon broadcloth in the pastel tints for evening wear, especially in sky blue and lavender.

Self colored stripes in navy and brown panamas will be in demand during the entire season. A large number of orders have already been received for the rough panamas, which is very similar in appearance to the rough pongee silk. It is predicted that this cloth will be one of the leading sellers of the season.

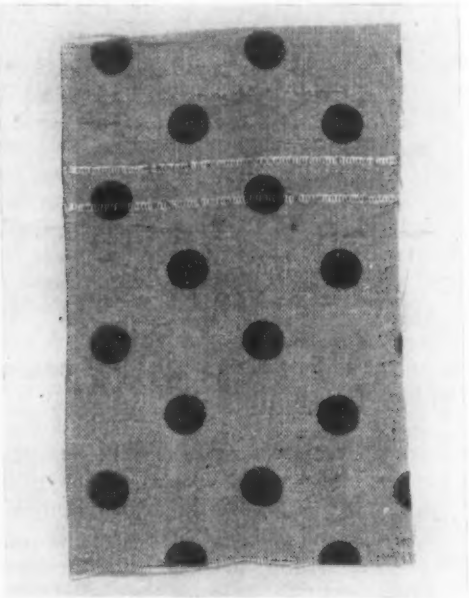
Two colored stripes, black and white, and navy and white, in different designs, will have their usual demand.

Plaids do not seem to be as strong this season. Staple checks are holding their own.

The fall buying of dress goods will start within a few weeks. It is a question what the trade will turn to, but every indication points to chiffon broadcloth as a leader with the 54-inch serge as a close second. Aside from navy it is doubtful what will be the leading fall colors. Bottle green is in demand.

SILK.

The conditions in the silk market have improved within the last few weeks. Prices have been reduced and the buyers are placing their orders with more confidence. A great many of the mills have only been running half of their looms in order to curtail their productions, as most of them own the



raw silk at high prices.

Plain rough pongees are receiving the most calls for spring wear. This rough silk is being turned out by many silk manufac-

turers under a number of different names such as "Rajah" at 95 cents, "Mirage" at 92 1/2 cents, "Tuscan" at 72 1/2 cents, and so on down as low as 37 1/2 cents a yard.

Several houses are showing these rough pongees in self colored stripes and dots, with good success. There has also been a big demand for these goods in tan ground with printed and woven stripes.

Two patterns from the line sold by Valentine & Bentley at 72 1/2 cents are shown at Figs. 1 and 2.

Copenhagen blue, electric blue, browns, navies, tans and myrtles are the most popular colors for spring.

The demand for 36-inch black taffetas has increased since prices were reduced. A good 36-inch fabric can be bought today for 75 cents, which had been selling for 80 to 85 cents.

A number of commission houses are showing 19-inch colored taffetas from 42 1/2 to 60 cents, which are selling very well in the spring colors. These goods are about 2 1/2 cents a yard cheaper than they were last season.

Foulards have been in very good demand this season, especially in navy and marine ground with white dots. There has also been a good demand for fancies. Cheney Bros. say that their foulard business has been very good this season and that so far they are making prompt deliveries.

Stripes predominate in fancy silks for spring, although fancies have not been as active this season as last, most of the manufacturers are showing some very exclusive designs and patterns, especially for waists.

In 1906 there were six thousand national banks in the United States with a capital of 826 millions of dollars.

For the seven months ending July, 1907, the United States imported alizarine and alizarine dyes to the value of $413,511, the quantity being over two million pounds. In the same period there were imported coal tar colors and dyes to the value of $3,634,386, nearly all coming from Germany, besides 4,464,478 pounds of indigo, valued at $807,709.

THE TESTING OF TEXTILE MATERIALS.

Editor Textile World Record:

I am much interested to find such ample details of European practices in conditioning in the article by Leo Pinagel, Director of the Aix La Chapelle Conditioning House, translated from the "Deutsche Wollen Gewerbe," which appears upon page 85 in the January issue of your publication.

One of the salient points emphasized in the first paragraph is the fact that the conditioning of all textile materials has had a rapid growth in Europe. France, Belgium, Germany and England have organized special conditioning houses for wool at the various industrial centers associated exclusively with that staple, and which cannot be said to have an exact counterpart in this country. At Crefeld and Elberfeld, where both the silk and wool industries are carried on, the silk conditioning houses, which have been in operation since 1884, have taken up the conditioning of wool in all stages of manufacture. Thus under circumstances practically analogous to those existing in our Eastern states, it has been found practicable to apply to wool the same process as that used in silk.

This is what the New York Silk Conditioning House has been in a position to do for the last 27 years. The general introduction of conditioning for raw wool, woolen and worsted yarns as well as for other textile materials in this country does not necessitate any costly experiment or any new equipment. Our establishment can do all that the conditioning houses at Crefeld, Elberfeld or elsewhere can accomplish. All that is required is to send to us the samples to be tested, enclosed in an ordinary preserve jar with an air tight cover. This is the method of forwarding of samples as provided by the regulations of the Vienna Cotton Exchange.

The importance of conditioning is probably greater in the case of wool than in that of any other textile fiber. This is because of its high cost, coming among textiles next to silk in this particular; of its great capacity to absorb water, exceeding all other commercial fibers in this regard; and of the large

percentage of extraneous material which it usually contains.

It is of great interest to know that the English spinners have been agitating for the conditioning of cotton. Cotton shipped abroad is more liable to absorb water than when transported by land. The complaints of New England spinners show conditioning is required in the latter case. The French spinners have officially called for the establishment of conditioning houses in connection with every cotton exchange, to replace the guesswork by which moisture arbitrations are now conducted.

The conditioning of cotton yarn is provided for in detail by official regulations in Austria and Italy. There is in this direction a wide scope for the operations of an establishment such as ours.

New York occupies a position which renders it especially adapted for what is more fittingly described as a "testing house" than a "conditioning house." Though conditioning or determination of the amount of moisture by drying off is among the various processes conducted in such an establishment, it is only one of the operations that could be carried out. Among others may be mentioned the following:

1. The determination of the presence of other substances than water in textile materials, either in their natural condition or as a result of the introduction of foreign matters in preparatory industrial processes. The object of this test is to define the actual quantity of pure fiber.

2. The determination of the size or number of the yarn.

3. The twist of the yarns.

4. The strength of the yarns to be ascertained by a dynamometric test.

5. The strength of the woven fabrics to be ascertained by stretching, perforation or other methods.

In Germany, besides the conditioning houses at the various points, there is an official testing bureau at Grosslichterfelde, near Berlin, where materials of all kinds are tested, one section being especially devoted to textiles and paper. Recent tests of wood pulp at our establishment showed that we are able to arrive at the same results as are obtained at the Manchester Testing House. Our conditioning house gives to the American buyer of textile materials the same facilities that are at the disposal of his Bradford colleague.

ROBERT J. HOGUET,
President of the New York Silk Conditioning Works.

STYLE SUGGESTIONS FOR WOOLEN MANUFACTURERS.

The opening of the various lines has been very similar to that of January, 1894. Usually the overcoatings are shown early and orders placed and line withdrawn, as the trade practically sold their requirements before the opening of suitings. In 1894 as in this season the overcoatings and suitings have been shown together and in both the demand is for new shades and fancy effects, the trade feeling that they can buy staples at any time and want the new styles to keep their line.

There is a great diversity of opinion in regard to the outlook. Some of the largest users of cloth in talking to selling agents paint it in very dark and dubious terms and in almost the same breath make an offer for stock goods much below the asked price. The inference is plain that the talk of a dark outlook is for effect on the seller. The action in making the offer proves the mental attitude of the buyer to be otherwise. This is not an exceptional case but is the rule where a buyer wants stock goods.

Outside of New York City the trade is sure there is going to be a good business, but they are conservative and disposed to go slow. This has made many buyers too cautious and instead of placing orders for sample pieces they are endeavoring to place them for only a short yardage. Under the new way of showing clothing, a sample suit is shown with bound samples of the styles the suit will be made in. This makes it very good for the clothing manufacturer, but extremely hard for the goods maker who gets only an order for a few yards, and cannot run his mill on this quantity. It is conceded that there will be an awakening such as the buyers had some years ago when they tried

this plan, sold their goods and then could not get them.

The selling of short yardage has become a great abuse. Some of the largest sellers are so anxious to have their lines represented that they are giving a few lines gratis. In marked contrast to this method of doing business is the action of the Earnscliffe Mills, Deering, Milliken & Co. and Stursberg, Schell & Co., who absolutely refused to sell short yardage. A more determined stand by the rest of the trade in this regard would work wonders.

Within the last few days the general market has improved and there is more of a demand for goods for immediate use; particularly is this true of light weight worsteds, many buyers who canceled orders in November and December calling the goods in.

There have been a few reductions of prices on light weights caused by the desire to move stocks, piled up by the cancellations of orders, but these reductions have been slight.

In the heavy weight lines the finer grades open at last year's prices in almost every instance. This is occasioned by the firmness of the best grades of wool, and it is almost certain that if there is any demand for goods of this character in large quantities there will be an advance in prices.

The medium and cheaper grades of fabrics show a reduction and these grades of wool have been gradually working easier and it would seem as if they had about reached as low a price as they would touch.

The worsted lines in the finer grades remain about the same, and in worsteds it is extremely difficult to make a comparison, because where a price has been reduced or in some instances is the same as last year it will be found upon investigation that the weight has been taken out of the fabric and it is made lighter in order to offset the reduction.

In some lines of kerseys, however, the reduction has been made on the fabric in every respect the same as last year. Whether this has been the result of stock goods to sell or exceptional opportunities to buy the raw material is a question.

Stevens, Sanford, Cushman & Jordan have reduced the kersey they sold last year at $1.35 to $1.25. The fabric which was $1.95 is now $1.75, and the one which was $1.05 reduced to $1.02 1/2 is now 97 1/2 cents. The St. Nicholas kersey, which is a standard make sold by Holmes & Bowers, has been dropped from $1.35 to $1.25. In comparison with these reductions in the cheaper grades is the St. George kersey, which is the standard make known by every retailer in the country. It sold last year at $2.50, which is also the price this year for a much more beautiful fabric and an exceptionally fine line of fancy effects.

These fancy effects in kerseys have been made quite largely and one of the cheaper grades is that sold by Bauendahl & Co. for $1.50 made by Johnson at Stafford Springs. The American Woolen Co. also have a line at $1.37 1/2 and the Hillsborough Woolen Mill Co. have a line of stripe kerseys, sold by Stevens, Sanford, Cushman & Jordan. The staple line of this mill's goods range from 95 cents to $1.50.

The Worumbo fabrics sold by Deering, Milliken & Co. run from $2.00 up. Some grades show a reduction and some are the same price as last year. The Madison kerseys, sold by the same house, are $2.00 per yard. The Mayo overcoatings are $1.37 1/2. The Pondicherry fabrics run from $1.05 to $1.25, and are a good example of the most desirable finish for cassimeres, being more of a soft Saxony than the cheviot finish. This is also true of the line shown by the Geo. H. Gilbert Mfg. Co. at $1.15 to $1.32 1/2, the cheaper grade being the most popular.

A cassimere fabric with more of a worsted finish than those previously mentioned is shown by the Shelbourne Mills, under the Ashaway and Carolina ticket, ranging from 90 cents to $1.25. They make a backed fabric, with the bulk of the weight in the back. The face is woven very fine, making a very attractive piece of goods, which has had a large sale in former seasons.

At one dollar and very close to it, there are more lines of cassimeres than ever. The general idea seems to have been to aim here and very few lines show fabrics which are higher priced. Some of the most sightly fabrics are below this line. One made by the

Tilton Mfg. Co. and sold at 95 cents net is well spoken of, also the one sold by E. B. Moore & Co. and made by the Camden Woolen Co. at 70 cents. Another fabric in this same class is the one shown by Wallach, Hoexter & Co. at 67 1/2 cents.

There is a growing demand for fancy backs and several fine lines of overcoatings have been brought out. One of these is shown by Allen, Lane & Co., another by Battey, Foulkes & Trull. Another good line of these goods is shown by the Pontoosuc Co.

In fancy overcoatings the market is extremely well covered. A very fine line of styles is shown by Bauendahl & Co. and made by the Worcester Woolen Mill Co.

Serges show reductions in the cheaper grades; the finer ones stay at last year's prices. Some buyers comment on the fact that the selling numbers are shown at the same price as last year, while the ones which are in stock are reduced. This applies to all the large serge makers.

While the demand for coverts is a growing one it is not sufficient to tempt any new makers into the field. The standard makes maintain their prices. It is a peculiar fact that the highest grade coverts are the best sellers. The principal heavy weight fabric is that made by the Waterloo Co., which sells about $2.75.

In worsteds the field is covered so completely that it is difficult to mention leading lines, and more difficult to make comparisons on account of the changes in fabrics.

The impression before the opening of the lines was that the unfinished worsteds would sell. These have been shown to a great extent, but have met with little success, the trade buying the clear finish goods. These, however, have met very hard competition with the cross dye worsteds, which have been produced in beautiful and striking patterns. The general tendency is towards shadow stripes, olive and greenish tones and some lighter drabs.

The Metropolitan 16-oz. fancy worsteds shown by Henry W. T. Mali & Co. at $1.22 1/2 are spoken of as a very attractive line.

The Earnscliffe Worsted Mills show the Saxonville fancy worsteds at $1.37 1/2. The serges made by this mill are reduced 2 1/2 cents from last year's prices. Their Mayflower staples and fancies range from $1.75 to $2.07 1/2, their unfinished worsteds from $1.20 to $1.35, but these are only 13 1/2 to 16 ounces in weight. The bulk of the numbers are in the lighter weight. This is also true of the Continental serges, which are from $1.26 to $1.43 1/2, net.

The Cleveland Worsted Mills' products, which are sold by Morton H. Meinhard & Co., range in price from $1.35 to $2.00 and show a general reduction from last year's prices.

The Coronet Worsted Co. have also reduced their prices on serges about 5 cents a yard. Their worsteds in comparison with the prices of a year ago show a reduction of 10 cents a yard, but this may be offset by a corresponding reduction in weight. Their prices are from 72 1/2 cents to $1.95. Generally their fabrics are heavier than the bulk of the lines shown.

The Princeton worsteds sold by Neale & Cruickshank in both clear and unfinished fabrics range from $1.65 to $1.95.

Stroud & Crawford show a line of cross dyes in finished and unfinished fabrics at $1.50. They call them semi-finished.

The Rhode Island worsteds are sold by W. T. Mali & Co. at $1.20.

The American Woolen Co. has made a specialty of cross dye worsteds and succeeded so well that they will undoubtedly interfere with the sale of the fancy worsteds.

In 1906 the number of savings bank depositors in the United States was given as 8,027,192, representing $3,299,544,601 in deposits.

In the last ten years the exports of artificial indigo from Germany, which is one of the principal articles of its chemical industry, have quadrupled in value, and the quantity is fourteen times greater. The exports for 1906 were valued at $7,520,800. The largest single purchaser was Japan, importing $1,642,200 worth; the United States imported $1,071,000 worth.

THE MANUFACTURE OF BRAID IN THE UNITED STATES.

BY FERDINAND THUN.

(Continued from January.)

In the last two articles of the present series, a number of patterns of bi-circle braids, "Radium" effects, as they are styled in the trade, have been illustrated and described. A great variation of figured effects has been shown, resulting in almost every case from changes of weave or changes in

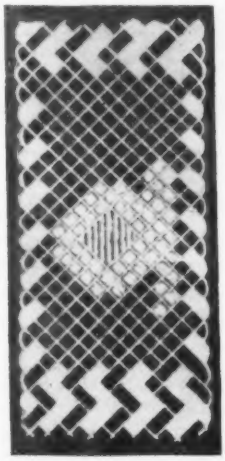


FIG. 100.

the rotation of different colors or materials on the braiding carriers, or from both. In nearly every case the braids were made without warps, and, indeed, in the majority of cases, this is preferable, because, by the introduction of warp threads one of the most valuable characteristics of a braided fabric is lost, inasmuch as the braid is not adapted to be laid into curves. Nevertheless, for straight braids the pattern possibilities on bi-circle machines are greatly augmented by the use of warp threads. To illustrate this, we refer to Figs. 100, 101 and 102, which shows a diagramatic arrangement of the machine and its product.

Fig. 102 represents an eight-line bi-circle machine having 3 and 5-horn terminals, and having all the gears arranged in a straight line to facilitate projection. The gears are numbered from 1 to 16. The lower row of gears represents what on the machine would be the outer gear circle, while the upper row of gears corresponds with the inner gear circle on the machine. On gears 5, 6, 7, 8, 9, 10, 11 and 12, heavy dots in the centre indicate warp threads, whereas, on the switches interposed between these gears and lying between the inner and outer runs, open circles are shown, which also indicate warp threads.

The possibilities of producing patterns by means of warp threads are three-fold:

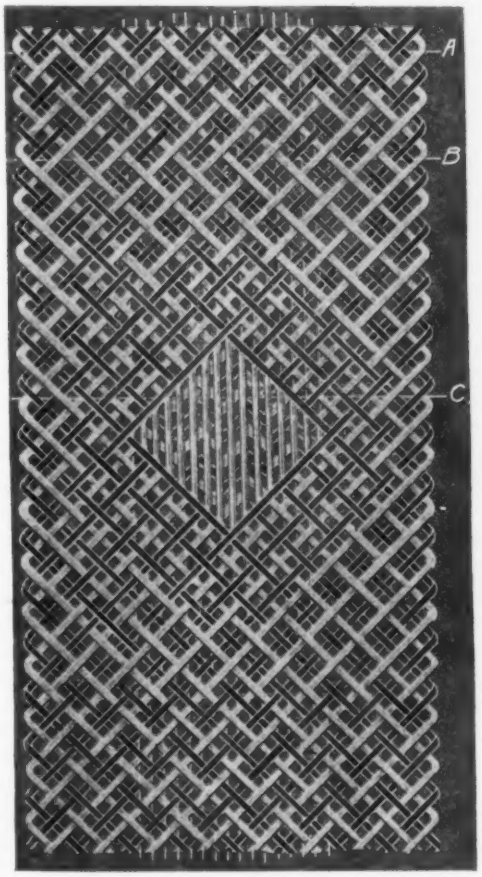


FIG. 101.

1. The color or material of these threads as contrasted with the other threads.

2. Their direction parallel to the edge of the braid contrasting with the diagonal lay of the carrier threads.

3. The intermittent floating on the sur-

face of the warp threads at predetermined distances by switching the carrier threads alternately over and under the threads by means of a jacquard mechanism.

Fig. 100 illustrates a braid with figured effects resulting from two contrasting colors carried by the yarn carriers, while the diamond figure in the centre represents the effect of floating warp threads.

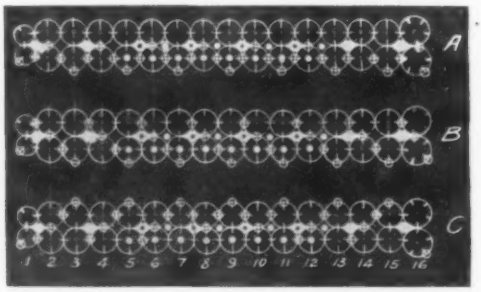


FIG. 102.

Fig. 101 is an enlarged view of the same braid with the individual strands drawn apart to show the structure of this fabric and to conform in projection to the view of the machine at Fig. 102. The straight parallel lines in the center of Fig. 101 indicate the warp threads.

At Fig. 102 all the carriers are shown on the outer run and are indicated on the lower gear circle. The braid produced in this manner is a plain braid made with thirty-two carriers, and having enclosed therein, eight warp threads, which pass through the axles of gears 5, 6, 7, 8, 9, 10, 11 and 12. These eight warp threads are, therefore, completely covered by the braiding threads, and show on neither side of the braid. The four warp threads introduced through the axles of the switches will lie loose on the reverse side of the braid in this portion of the fabric. The section, A to B, in Fig. 101, is produced in this manner, and the resulting braid is a striped effect, produced by the regular rotation of the two contrasting colors indicated by the black and white lines.

At B, Fig. 102, the position of the carriers is changed and every second carrier now travels on the inner gear circle so that one-half the number of carriers now belongs to the inner, and one-half to the outer circle, except that on the two terminals all the carriers pass over the outer gear. The braid thus produced is in reality a tubular fabric united at the edges, in which all the warp threads are enclosed so that they show on neither side of the braid.

At C, Fig. 102, the position of the carriers is again changed. At gears 6, 7, 8, 9, 10 and 11, all the carriers are traveling on the inner course, whereby the two series of warp threads are made to lay on the face of the

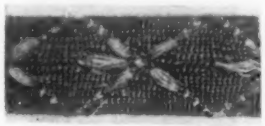


FIG. 103.

braid to form the desired diamond effect. In this position all the carriers travel over the outer terminals, and on gears 2, 3, 4 and 5, every second carrier travels on the outer course, the rest on the inner course. The cross sectional lines at C, Fig. 101, corresponds with the position indicated at C, Fig. 102.

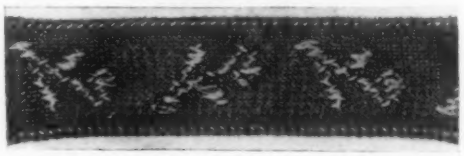


FIG. 104.

It is evident that the figure which surrounds the warp threads is produced by similar means, as had been described in analyzing the patterns shown in Fig. 93 in the December, and Fig. 94 in the January issue.

The drawing shows the principles governing the introduction of warp threads in producing pattern effects in "Radium" braids.

Fig. 103 shows a very simple pattern with a warp thread effect. The diagonal lines of the contrasting color in this pattern are carrier threads, while the center lines, parallel with the edges and the dot at the intersection of the diagonal lines are produced by a warp thread.

The pattern shown at Fig. 104 is a fine example of what can be accomplished in figured designs on bi-circle braiders. This pattern is produced on a 16-line, 65-carrier bi-circle machine by having a 3-horn terminal at one side, thus reducing the number of carriers actually used to sixty-four. Of these 32 are black and 32 green, following each other in the rotation, 1 black, 1 green. The narrow line near both edges is produced by a warp thread in red silk, which is so located that all the carriers with black thread pass under it, and all the carriers with green thread pass over it.

The embroidery-like figures in the center of the braid result entirely from the use of warp threads. On this braid pattern they are made of red silk, 15 such threads being required to produce the pattern. They lie loosely on the surface of the braid for short intervals as prescribed by the pattern mechanism, and wherever they do not appear on the surface they are covered up and enclosed by the carrier threads passing over and under them.

(To be continued.)

KNIT GOODS MANUFACTURERS MEET.

A special meeting of the American Knit Goods Manufacturers' Association was held at the Continental Hotel, Philadelphia, on Saturday the 1st inst. There was an attendance of about thirty prominent manufacturers and a most enthusiastic meeting resulted.

The President of the Association, Mr. J. C. Lautenbacher, of Schuylkill Haven, Pa., was prevented from attending the meeting on account of sickness and Mr. T. J. Whittaker of the Hazel Knitting Mills Co., Hazleton, Pa., the second vice president, acted as chairman of the meeting.

The most important subject discussed was that of the net weight yarn movement. Satisfactory progress was reported by the Secretary-Treasurer, C. B. Carter, also from the special committee which was appointed at the meeting in December, to take up the net weight yarn question. This committee consisted of Mr. Harry Querns of Querns Bros., Philadelphia, Mr. J. W. Landenberger of J. W. Landenberger & Co., Philadelphia, and Mr. Jacob Reed of Union Knitting Mills, Schuylkill Haven, Pa. Mr. Reed asked to be excused from serving upon the committee, as he felt that a manufacturer from Philadelphia, where all the conferences would be held, would best serve the Association. The chair accordingly appointed Mr. Edward Blood of John Blood & Bros. This committee is to meet the officers and executive committee of the National Association of hosiery manufacturers on Wednesday the 5th of February, at which time further plans will be decided upon.

It was decided to in a measure divide the work of the Association into subdivisions. In other words, the manufacturers producing certain grades and style of underwear will arrange for special meetings when they may discuss questions peculiar to those styles and endeavor to bring about more harmonious and uniform action not only in the direction of terms, conditions, etc., under which their goods are sold but to as far as possible arrive at a correct knowledge of the cost of manufacture in order that their prices may be more in accord. No price agreements are contemplated, but it is believed that the closer co-operation as it is hoped will result, will enable the manufacturers interested to realize more profitable returns from their efforts and investments.

It was the consensus of opinion that the cancellation evil was a thing of the past, as no complaints were mentioned. Many of the buyers who had previously attempted cancellations, have since consented to accept the goods—and that too without the mills having to make any concessions as to prices and those present were therefore highly pleased over the results which has followed the Associations efforts in this direction.

The secretary reported that a number of new members had been admitted to the Association since the last meeting, and that the prospects for the future were very bright.

The annual convention will be held in Philadelphia on the 14th and 15th of May, during the same week of the Annual Convention of the National Association of hosiery manufacturers. Plans for the exhibition indicated that much progress had been made.

PLAN OF A WOOLEN MILL.

The plans for a woolen mill, built at Grossenhain, Germany, by the Grossenhainer Webstuhl-und Maschinen-Fabrik are shown in the accompanying illustrations. All the buildings are one story high and covered with a monitor roof. There is but one entrance to the work rooms, through the passageway, D, in which is located the wardrobe, S. The storeroom, F, for finished goods, is the only room having direct access to the outside.

The rooms adjacent to the passageway are as follows. E, washroom; G, sewing room; F, dry room; L, preparatory machinery; C, wool dry room; B, picker room; A, card room; A^1, spinning room; A^2, weave room. The spaces between the posts are 11 feet 6 inches by 17 feet 3 inches. There are 16 posts lengthways with the mill, giving 17 bays; and 12 posts the width of the mill, giving 13 bays. The posts are 14 feet 9 inches high. The general arrangement of the posts and roof is shown at Fig. 4. There are no windows in the side walls, all light coming through the windows in the roof.

The boiler house, H, is built separate from the mill, the belt way being located between the two. The boiler house has a one-span roof provided with lattice towers. Light enters through large windows in the side walls. This room accommodates two boilers and is connected by a door with the power house, K.

Power is obtained from a double expansion tandem engine. In case it is desired to increase the capacity of the engine it will be necessary to enlarge the engine room, as shown by the dotted lines. The power is transmitted from the fly wheel to the main shaft, 1, which in turn drives shafts, 2, 4 and 5. Shaft, 2, drives shaft, 3, and the smaller shaft in the room, G. Shaft, 5, drives shafts, 6 and 7, for operating looms. Shaft, 7, drives shaft, 8, by means of beveled gears. Beveled gears are also used for driving shaft in the room shown at Fig. 5, where shaft, 10, is driven by shaft, 9, while shaft, 11, is driven by a belt.

Machinery is arranged to facilitate the handling of the stock. The wool scouring plant is located in room, E, which contains a large wool washing machine, f, a rinsing machine, g, and an extractor, h. From this room the wool is carried to the dry room, C, which is equipped with a steam boiler and ventilator in addition to the necessary drying apparatus.

Next to this dry room is the picking room, B, which contains a large picker, e, a small picker, e^1, and a spiral duster, e^2. In the card room, A, are 7 first breaker cards, k^1; 7 second breaker cards, k; and 7 finisher cards, k^3; one grinder, k^3, and a frame, k^2. In the spinning room, A^1, are 10 mules. The yarn is carried from this room to the store room, M. If double and twist is required the yarn is twisted on the twister, d, in room, A^2.

The warp preparatory machinery consists of 2 warpers, c; 1 beamer, b; 1 sizing, drying and beaming machine, pb; and two warpers with beamers, o. In room, A^2, there are 78 looms and in the other weave room, shown at Fig. 5, there are 40 more looms. The cloth from these looms is taken to the finishing room, which is equipped with the following machinery: Six washers, w; 6 fulling mills, v; 1 squeezing machine, u; 1 pump, i^2; 1 napper, r^1; 2 double gigs, s; 1 gig, r; 1 extractor, t; 1 cloth drier, p; 2 straightening machines, q; 3 shears, o; 1 brush, l; 1 rotary press, m; 1 plate press, i^1; 1 winder, n; 1 decatizing machine, n^1; and 1 folding machine, k^4.

The manufacture of panama, or Toquilla straw hats is an important industry in Ecuador. On account of the demand for these hats and the limited production of the raw material the price of the straw has advanced in the last few years from 15 to 80 cents a pound. The finest hats are made in the Manabi Province, and are especially noted for fineness of fiber and excellent workmanship, the highest grades commanding a price of $100 to $125. From five to six months is required to make a hat of this grade as the work can be done only during certain hours of the day. The value of the hats exported from Ecuador to the United States in the calendar year of 1906 was $600,901.

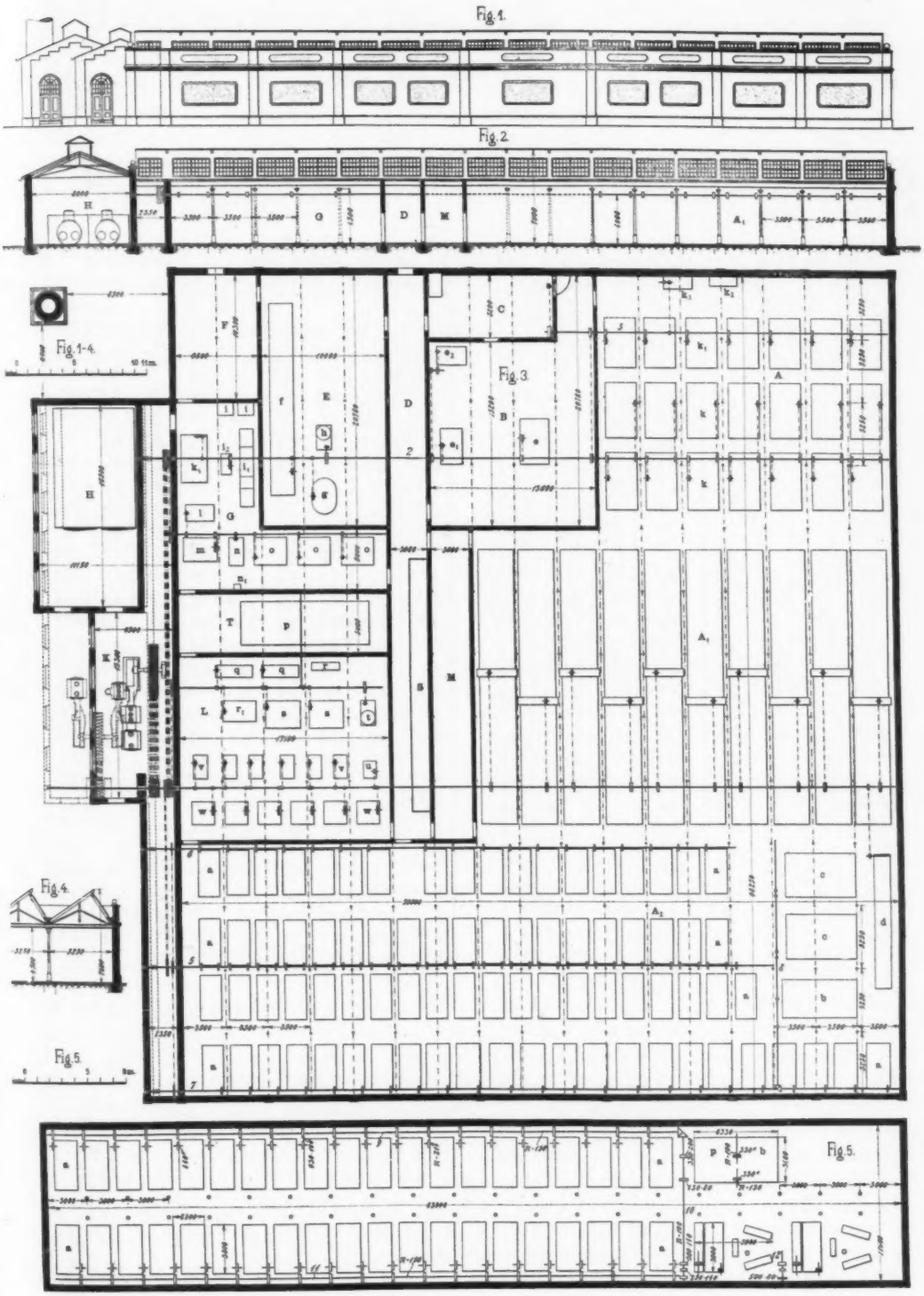


Fig. 1.
Fig. 2.
Fig. 1-4.
Fig. 3.
Fig. 4.
Fig. 5.
Fig. 5.

PRODUCTION AND TWIST TABLES.

BY J. F. M.

For years I have used the accompanying tables and found them very useful as they enable one at a glance to determine the speed of the front roll of roving frames and the production to be expected after any change of counts or change of twist. We must first know the speed of the flyer, which remains unchanged, also the twist in the roving to be made. Suppose for example that the frames have a flyer speed of 1,300 r. p. m. and that we wish to make a roving that will require 4.10 turns of twist per inch. Referring to the table at Fig. 1 under twist we find 4.10 opposite that and under 1,300 r. p. m. we find that 89 is the number of revolutions per minute of a 1 1/8-inch front roll. This is for a roving frame with a flyer speed of 1,300 r. p. m. to give 4.10 turns of twist.

To find how many hanks may be expected for a week of 58 hours we look on the production table for 1 1/8-inch roll and find under r. p. m. of roll the speed, which is 89. We find that 88 r. p. m. will give 36 hanks and 90 r. p. m. will give 37 hanks, hence 89 r. p. m. will give 36 1/2 hanks in 58 hours, which is 100 per cent. of production.

Production for 1 1/8" Front Roll 100% of Hanks in given hours with given speed of Front Roll.

Roll	Hours			Roll	Hours		
R.P.M.	10	58	60	R.P.M.	10	58	60
70	4.9	28	29	124	8.7	50	52
72	5.	29	30	126	8.8	51	53
74	5.2	30	31	128	8.9	51.9	53.9
76	5.3	30.8	31.9	130	9.1	52	54
78	5.5	31	32	132	9.2	53	55
80	5.6	32	33	134	9.4	54	56
82	5.7	33	34	136	9.5	55	57
84	5.9	34	35	138	9.6	56	58
86	6.	35	36	140	9.8	56.8	59
88	6.17	36	37	142	9.9	57	59.8
90	6.3	37	38	144	10.1	58	60
92	6.45	38	39	146	10.2	59	61
94	6.6	38.6	39.9	148	10.3	60	62
96	6.7	39	40	150	10.5	60.8	63
98	6.8	39.4	41	152	10.6	61	64
100	7.	40	42	154	10.8	62	64.8
102	7.1	41	42.9	156	10.9	63	65
104	7.3	42	43	158	11.	64	66
106	7.4	43	43.8	160	11.2	64.9	67
108	7.5	43.8	44	162	11.3	65	68
110	7.7	44	45.1	164	11.4	66	68.8
112	7.8	45	46	166	11.6	67	69
114	7.9	46	47	168	11.7	68	70
116	8.1	47	48	170	11.9	69	71
118	8.2	48	49	172	12	69.8	72
120	8.4	48.7	50	174	12.	70	73
122	8.5	49.	51	176	12.3	71	73.9

Speed Table for 1 1/8" Front Roll with given Twist and Flyer Speed

	R. P. M.							
Flyer	1200	1250	1300	1350	1400	1450	1500	1600
Twist	Roll	Roll	Roll	Roll	Roll	Roll	Roll	Roll
5.30	64	66	69	72	74	77	80	85
5.20	65	68	70	73	76	79	81	87
5.10	65	69	72	74	78	80	82	88
5.	67	70	73	76	79	82	85	90
4.90	69	72	74	77	81	83	86	92
4.80	71	73	76	79	82	85	88	94
4.70	72	75	78	81	84	87	90	96
4.60	73	76	79	83	86	89	92	98
4.50	75	78	82	85	88	91	94	100
4.40	77	80	83	86	90	93	96	102
4.30	79	82	85	88	92	95	98	104
4.20	80	84	87	90	94	97	101	107
4.10	82	86	89	92	96	99	103	110
4.	85	88	92	95	99	102	106	113
3.90	87	90	94	97	101	105	109	116
3.80	89	92	96	100	104	108	111	119
3.75	90	94	97	101	105	109	112	120
3.70	91	95	99	103	107	111	114	122
3.65	92	97	100	104	108	112	115	123
3.60	94	98	102	106	110	114	117	125
3.55	95	99	103	107	111	115	119	127
3.50	97	101	105	109	113	117	121	129
3.45	98	102	106	110	114	118	122	131
3.40	99	104	108	112	116	120	124	133
3.35	101	105	109	113	117	121	126	135
3.30	103	107	110	115	119	123	128	137
3.24	104	109	113	117	122	126	130	140

An overseer should know about what per cent. of efficiency he can safely reckon on. Suppose an efficiency of 90 per cent. would give (36.5 × .90) 32.85, or 33 hanks per frame in 58 hours.

The total value of the exports from Jamaica for the fiscal year 1907 was $9,694,102, an increase of $724,267. Of this amount the United States bought goods to the value of $5,543,313.

CORRESPONDENCE AND NOTES

Upon Textile Topics At Home and Abroad.

WARP PREPARATION.

BY MILO BLAIR.

After the overseer of dressing has received an order for the pattern to be picked, and the number of cuts to be dressed, his first duty is to figure the number of pounds of each color and size of yarn that will be required to dress the number of cuts ordered. We will take the following dressing pattern for illustration:

		2 A
		4 D
4 X	{	4 E
	{	4 D
		4 E
		4 B
		4 D
		4 B
8 X	{	4 E
	{	4 D
2 X	{	6 E
	{	2 D
		4 E
		12 C
5 X	{	4 E
	{	4 D
		2 E
		192

ENDS IN PATTERN	SECTION
2	4
8	16
12	24
80	160
90	180
192 ends	384

384 times 16 = 6144 ends.

A	—	4	ends
B	1 spool	32	"
C	1 "	24	"
D	4 "	40	"
E	5 "	36	"

There are 180 ends of E, which is 2/40 light worsted mix; 160 ends of D, 2/40 dark worsted mix; 24 ends of B, silk twist equal in size to a 2/26 cotton; and 4 ends of A, 2/40 red fancy worsted; a total of 384 ends in the section. There are 16 sections in the warp. The warp in question is to be dressed 8 cuts, 70 yards each. To find the amount of each kind of yarn required we proceed as follows: If there are 180 ends in one section, in 16 sections there will be 16 times 180, or 2,880 ends. As each cut is 70 yards long, there will be 70 times 2,880, or 201,600 yards of light 2/40 mix in one cut. In 8 cuts there will be 8 times 201,600, or 1,612,800 yards of 2/40 light mix. 2 ply 40s equals 20 single. 20 times 560, worsted standard, is 11,200 yards of 2/40 in 1 pound. 1,612,800 ÷ 11,200 = 144 pounds of 2/40 light mix. Allowing 5 per cent. for waste we find that 152 pounds of 2/40 light mix is required to dress 8 cuts. Proceed with the 2/40 dark mix in the same manner; 160 ends in one section, 16 times 160 = 2,560 ends of dark mix in warp; 70 times 2,560 = 179,200 yards of dark mix in one cut. 8 times 179,200 = 1,433,600 yards in 8 cuts; 20 times 560 = 11,200 yards in one pound; 1,433,600 ÷ 11,200 = 128 pounds; 5 per cent. of 128 pounds = 6.40 pounds. 128 added to 6.40 = 132.40, or about 133 pounds of dark mix required.

Then 24 ends of 2/26 black cotton

16 × 24 = 384 ends in warp.
70 × 384 = 26,880 yards in 1 cut.
8 × 26,880 = 215,040 yards in 8 cuts.

As 840 is the standard for cotton, we multiply by 840 instead of 560 as in the previous example.

2/26 = 13 single.
13 × 840 = 10,920 yards in 1 pound.
215,040 ÷ 10,920 = 19.69 pounds.
5 per cent. of 19.69 = .9844.
19.69 and .9844 = 20.67 pounds, or about 21 pounds 2/26.

We have 16 ends of silk twist equal in size to 2/26 cotton. We have already calculated for 24 ends of 2/26 cotton; 16 is two-thirds of 24. Two-thirds of 21 pounds is 14 pounds of silk twist required. There are 4 ends of 2/40 red fancy worsted.

$16 \times 4 = 64$ ends in warp.
$70 \times 64 = 4{,}480$ yards in 1 cut.
$8 \times 4{,}480 = 35{,}480$ yards in 8 cuts.
$20 \times 560 = 11{,}200$ yards in 1 pound.
$35{,}840 \div 11{,}200 = 3.20$.
5 per cent. $= .16$.
$\frac{1}{6}$ and $3.20 = 3\frac{1}{3}$ pounds of 2/40 red worsted required.

The order for yarn will be as follows:

Light mix 2/40 worsted, 152 pounds.
Dark mix 2/40 worsted, 133 pounds.
Red fancy 2/40 worsted, $3\frac{1}{3}$ pounds.
Black 2/26 cotton, 21 pounds.
Silk twist 2/26, 14 pounds.

When the yarn is received in the spooling room, we must decide which will be the most convenient way to spool it for the dresser. In this pattern we have 180 ends of light mix in one section. It will be readily seen that five 36 end spools will be the most convenient method. We must find the number of yards to wind on each spool. There are 70 yards to each cut, 8 running cuts to a section and 16 sections. $70 \times 8 \times 16 = 8{,}960$ yards to be spooled on each of the 5 spools. As each hole on the spooler clock corresponds with 60 yards, we divide 8,960 by 60, which gives 149.33, or about 150 holes on each of the 5 spools.

Next comes the dark mix, of which there are 160 ends in each section. The best division of this number will be into four 40 end spools. The length or number of holes required is the same as the light mix, except that we have but 4 spools instead of 5. There are 24 ends of black 2/26 cotton, which can be spooled on one 24 end spool without measuring.

Next comes the silk twist. As the thread guide cannot vibrate the width of the spool with but 16 ends, it is necessary to make a 32 end spool, spooling the entire 14 pounds on one spool. The spool is run in halves of 16 ends each when dressing. The 3 1/3 pounds of red 2/40 worsted we will reel only, running the four ends from reeler spools on the dresser. We now have the yarn spooled in the following manner:

5 36 end spools of light mix.
4 40 end spools of dark mix.
1 24 end spool or black cotton.
1 32 end spool of silk twist.

11 spools.
4 reeler spools of red fancy.

We can now pick the pattern. The draft calls for 384 ends in a section. Count out 384 ends in the centre of the pattern reed, making sure that there are no double ends and no empty dents, then divide the section in two equal parts, making 192 ends in each half. This division is made in order that, if the dresser tender should drop or raise by mistake one or more ends than the draft calls for in any one place, or if he should not take the full number called for, his mistake will be noticed when he finished half of the section. In the first case he would not have enough ends to finish his pattern, while in the latter case he would have extra ends, showing that he has made a mistake somewhere in the first 192 ends picked. The same remarks will apply as well to the second half.

Before picking we must decide which color to run from the top and which to run from the bottom. Usually it is best to have the black or darker colors at the top, the broken spools in the centre, and the lightest color at the bottom. This arrangement gives a better opportunity to watch the broken spools, which require frequent tying over in order to have them level at the end of the warp. The end thread causes more or less bother even when handled with the best of care. Placing the lightest color at the bottom makes a brighter underground for the darker colors which are above, making it easier for the dresser to see the ends at the reed.

Referring to the dressing draft we will start to pick at the right end of the reed and the right end of the draft. As the 2/40 light mix is the brightest color, we will pick that "down," under the finger, for the ground or

bottom color and pick as follows: Starting at the lower right hand corner of the pattern 2 down, 4 up, above the finger, 4 down, 5 times; 12 up, 4 down; 2 up, 6 down, 2 times; 4 up, 4 down, 8 times; 12 up, 4 down; 4 up, 4 down, 4 times; ending with 6 up.

We now have the light mix separate from the remaining colors. Knot the ends of this color together and drop them out of the way for the present.

Next take all the ends that were picked up and proceed to pick out the dark 2.40 mix, picking it down in the same manner as the light mix.

The dark mix will then be picked: 20 down, 12 up; 36 down, 4 up; 4 down, 4 up; 20 down ending with 2 up.

Knot the dark mix in the same way as the previous color and drop it out of the way.

Next pick the black 2.26 cotton out of the ends there were picked up and pick as follows: 12 down, 10 up; across the section.

Then separate the red 2/40 worsted and the silk twist, picking the twist "down," which will be 8 down and 2 up across the section, completing the picking of the colors with the red for the top color also finishing the pattern.

The second half is picked the same way.

After picking the pattern we must then pick the spools. Starting with the top color and working downward to the light mixed worsted.

The first color is the silk twist. As there are but 16 ends running all from one spool, we have simply to toss the ends over the top of the reed, and proceed with the next color, which is black 2/26 cotton, all running from one spool. These are also cast over the top of the reed.

The next lowest color is the dark mix, four 40 end spools. A rough rule among dressers for picking spools is as follows: Pick one thread out of every group of threads corresponding to the number of spools wanted. For example, we want four 40 end spools. Pick one end out of every four ends; that is, 3 down, 1 up. The 1 up represents the first spool of 40 ends. Knot the ends and cast over the reed. We now want three more spools. Pick out of the ends picked down one end out of every three, or 2 down, 1 up. The one up represents the second spool of 40 ends. There are two more spools to be picked out of the down ends. Pick one out of every two ends, or 1 up, 1 down, the 1 up representing the third 40 end spool, the 1 down representing the fourth and last 40 end spool.

Next we have the five spools of light mix. Pick successively, one end out of every five, one out of every four, one out of every three, until the five 36 end spools are picked the same as the four 40 end spools of dark mix.

We now arrange the colors in a manner corresponding to that in which we have the colors picked in the reed, namely, five spools of light mix at the bottom, four spools of dark mix next, then one spool of black cotton and last one spool of silk twist at the top. The four ends of red are run from spindles on the dressing frame.

The pattern is now ready to be tied in by tying the ends of the bottom spool to the first knotted bunch of ends at the bottom of the reed. Then tie the second spool to the second knotted bunch, the third spool to the third, fourth to the fourth, and so on until the whole section is tied in. After all are tied the ends can be run through the reeds preparatory to starting the warp.

Percentage of Cotton.

Editor Textile World Record:

How can I determine the percentage of cotton and wool in mixed goods? Seneca (948).

Weigh a sample of the mixed fabric, then boil for 20 minutes in a 10 per cent. solution of caustic potash of soda. This treatment removes the wool and a small percentage, possibly 5 per cent., of the cotton. Rinse, dry and weigh the residue, add 5 per cent. and the result is the weight of the cotton in the original sample. It is well to enclose the sample in a small sack of cheese cloth while boiling it in order to prevent loss of the cotton.

The exports of indigo from Bombay in 1906 were about 25 per cent. greater than for 1905; the value increased over 28 per cent.

DRY COMBING FOR WORSTED DRESS GOODS.

BY JOHN BROWN.

Whenever dyers as a body have been accused of not getting the more delicate shades as even and clear as their Continental competitors, they have invariably pleaded that one of their chief difficulties has been to get rid of the oil used in combing the tops from which the pieces were made.

This contention has more in it than appears at first sight because a milder treatment will serve when the goods have been made from drycombed tops than would be the case with tops combed in oil. As a rule when the shade obtained by English dyers has been as near as possible perfect there have sometimes been complaints that the handle and general get-up has not been equal to French pieces made from drycombed and mule spun yarns.

It is generally acknowledged that overscouring, however slight, robs the wool of some of its best qualities, also that some wools are damaged to a greater extent than others in overscouring. To test this, if a given weight, say one pound each of Sydney, Cape and Buenos Ayres wool (after ordinary washing to get rid of dirt) is put into a vessel and kept there at the boiling point for thirty minutes or so with a given quantity of soap, then taken out and dried, they will be found to have lost in weight and will not work up well whatever after treatment they are put through. It will also be found that there is a marked difference in the loss of weight, showing that some wools suffer more than others through overscouring. This is a factor not to be lost sight of when the best sorts to make a blend for any given purpose is under consideration.

We come back to the question, How is it that the French beat all competitors in making fine dress goods, particularly of the more delicate shades, both in the brightness and evenness of color, soft handle, and ability to furnish repeat orders without variation from these qualities? After careful consideration we come to the conclusion that the principal factors in obtaining these results are: 1. The care used in the selection of wools for the purpose required; 2. The use of tops free from oil; 3. The use of mule spun yarns. The idea that the dyewares and the quality of the water used make the difference has to a great extent been exploded. Dyers in all parts of the world use mainly German dyestuffs. As to the water, it has been demonstrated by analysis that the water used in both American and English dyeing centers is equal to any water used by the French dyers.

There are at least two reasons why the French excel all their competitors. Practically all of their tops are delivered free from oil, although not absolutely drycombed. This saves excessive scouring in the early processes of dyeing, preventing any damage being done to the fiber. The French exercise great care in making up their combing lots, using practically one growth for any particular blend.

Wools vary widely in their affinity for dyestuffs. On the Continent a spinning manager by a series of sample tests can judge what growths of wool he has to deal with and governs himself accordingly. One of the simplest tests is to put a weak solution of indigo dye into test tubes. Short lengths of the tops are dipped in the solution. The depth of the shade indicates the affinity of the fabric for the dyestuff.

Oil makes the wool draw more easily through the pins of fallers and circles, and enables the comber to get a slightly better tear, making less waste. Longer drafts can be used without much danger of breaking the fiber. More wool can be put through the same machines in a given time. Again, the oil helps to bind the fibers together and there is less fly or fluff.

A drycombed top may be kept a long time in stock without detriment either in handle or color, because containing no foreign matter, it does not undergo the same chemical change and is much less affected than are tops combed in oil. Even if by long storing the tops become somewhat dry and have a tendency to fly, a little moisture can easily be added by means of a spray at

the first drawing box and the fault remedied.

In drycombing a little more care is necessary. Shorter drafts are in some cases required and if the backwashing is done after combing instead of before (as in ordinary combing in oil) the noil is of a poorer shade and sells for rather less than noils produced from wool which has been backwashed. A trifle more waste is made owing to the fibers being freer and there is loss in the fluff which falls out at each operation.

Every process that wool has to pass through has a tendency to shorten the average length of fiber. By adopting drycombing one or more processes can be omitted. Drycombing on the Noble comb has been tried by others than Continental combers. In some cases after the usual washing and carding the wool is put through backwashing to get rid of the dust and the oil used in carding; then through the first and second gills and the punch box; then combed with slightly less heat in the circles and made into top by passing through the first and second finishers, seven processes in all.

Owing to being backwashed rather drier than when combed in oil, more water than usual has to be put on at the first finisher to bring the tops up to the trade standard for moisture. This is a great disadvantage as the addition of water after combing tends to loss of brightness in the appearance of the top. Another plan is to put the cardings through a doubling box, then the first and second gills, punch and then comb. Then after passing through the first and second finishers the top is backwashed. This is a slow job, involving eight processes.

Another and somewhat similar system has been tried. After leaving the comb where three or four slivers are doubled in one coiler the resultant slivers are backwashed and then put through the first and second finishers, seven processes. This involves a lot of carrying of the stuff about and adds materially to the expenses.

It will be noted that in the first system described the wool really was drycombed because the oil used in carding had all been taken out in backwashing before it was gilled or combed. This made a lot of fluff, proportionately, and rather more waste than ordinary combing, besides necessitating conditioning heavily when it reached the first finisher. On the other hand the noil had a clean, lofty appearance and readily sold at a good price. In the second and third systems it will be noted that the oil put on for carding purposes is not removed from the wool until it has passed through the comb. Owing to the machinery being arranged for ordinary combing both processes were somewhat inconvenient. Besides this the backwashing machines were fitted with five large drying cylinders and not easy to regulate for varying the drying process, and filled with gill boxes with half inch pitch, about 12 pins per inch. This is a great drop from the 36 to 44 per inch in the comb circles, causing a tendency to ruffle the fiber. In spite of these disadvantages some fairly good drycombed tops, giving good spinning and dyeing results, have been obtained.

Some firms have given more attention to the gills for backwashing and thus have obtained fairly good results. Nevertheless systematic drycombing has never been specialized in England. There are certain set rules (of course with slight variations) that are followed by our Continental competitors. Before putting the wool into the washing machine, they extract from it practically all of the potash. Some of the best English firms are doing this now and possibly when the system is more fully understood it will become general. It tends to leave the wool with a softer handle and in a good state for working in the subsequent processes.

After the wool has left the card it is put through a gill box with a moderately long draft, using enough carding ends to give the right weight for the comb. It is then put through a punch box and combed in the ordinary way. After this it is put through one finishing box and then backwashed in specially built machines, which act as second finishers, with fine gill heads containing screws about one-third of an inch pitch and fallers pinned at 18 per inch. These are far different from the machines used where the wool is backwashed before combing.

The tops when brought from the first finisher are fixed in self-acting creels so that there is no drag on the sliver. The

liquor in the first bowl is just strong enough to bring out any loose dust that may be in the sliver. This is not much, as most of the impurities have been dropped through the separation of the fibers on the gilling, combing, and finishing processes. The temperature of the water for fine wools is kept at about 90° F. The second bowl is only for a rinsing process, sufficient soap being used to make the wool pass through the squeeze rolls without sagging or cutting. Here the cost of scouring is very small because every fiber is in a much straighter and more open condition than if backwashed immediately after leaving the card.

After leaving the squeeze rolls the wool, instead of passing over 5 or 7 drying cylinders each 18 or 20 inches in diameter, as in the ordinary backwashing machine, passes over from 20 to 30 small cylinders each about 6 inches in diameter. The advantages of using a large number of small cylinders for drying are: 1. There is a constant change of the sides of sliver coming in contact with the hot surface of the cylinder, thus avoiding any danger of scorching through excessive heat; 2. The ease with which the tops can be delivered with the right amount of moisture left in to meet the demands of the conditioning house. It is seldom that all the cylinders are heated and in use at one time. If it is found that the top has too much moisture one or more extra cylinders can be heated and the desired effect obtained. If too dry, the slivers are simply slipped off one or more cylinders and the top is thus brought to the standard. After leaving the cylinders the wool passes through double gill heads fitted up in the same style as the best second finishers in ordinary use. The tops are papered as soon as doffed and sent off to pack in order that no dust or foreign matter may get on them and no ruffling by passing in and out of the bins as is the case in some places before papering.

As a fairly long draft is used on the backwash gill a proportionately large number of slivers can be fed in at the bowl end. In this way any little variation of the weight per yard is easily remedied, as the breaking down or putting up of an extra sliver easily corrects any errors in weight. This, briefly described, is the French system of drycombing. The question arises, Is it worth while to give it a fair trial and thus meet the objections of our dyers that the difficulty is in getting rid of the oil left in ordinary tops, which is one of their greatest hindrances in securing regularity and brightness in fine goods dyed to delicate shades?

THE MANAGEMENT OF A WEAVE ROOM.

BY GAMALIEL GAUNT.

"The first hour of the morning is the rudder of the day." This is especially true in the weave room and one of the overseer's most important duties is to see that the weave room help, second hands, loom fixers, weavers and other operatives are on hand at the time for starting work. Getting in late is a serious fault of the help in many mills and few realize what a great loss it causes to the company. The loss of a few minutes in the morning and at noon time means a loss of many yards in the daily production. The overseer should arrive before the time of starting and stand near the door of his room so he can see the help as they come in and be seen by them. He will not find it necessary to say a word to them for when they see him on the lookout they will make it a point to avoid being late. It is a bad plan to depend on the second hands to look after this important matter. The second hands should see that the looms are started on time and also report any weavers that are out.

The overseer should also keep a watch for looms waiting for weavers and use every effort to get them started as soon as possible. I do not believe in the so-called doubling up to keep the looms running. The overseer should find out the cause of each weaver's absence and have a list of spare weavers that he can call on in such an emergency. It is a very good plan for an overseer to have the addresses of all the operatives under his supervision. He should keep posted regarding the number of warps running out and the number that are expected to come into the room, arranging the work for the fixers so that it will be dis-

tributed throughout the day and not come all in a heap. While looking after these matters he can see whether the warps are in proper condition, and if not, apply the remedy at once. The spinner is often blamed for bad warps when the spooling and dressing room is responsible. After the yarn leaves the spinner it can be pulled to pieces in spooling and warping and ruined in the sizing. It takes but a few bad warps to demoralize the best of weave rooms.

The overseer should keep close track of the reports from his department so that he may know just how the different styles are distributed among the looms. The reports should be sent to the office as early as possible so that the superintendent can keep in close touch with the work of the mill and make his report to his superiors. When making these reports of production any bad work or shortage of warps or filling should be noted in order that all in authority may know of anything wrong and apply the remedy if possible. The overseer of weaving should be able to detect bad work and quickly determine its cause. To do this he must understand the processes not only in his own department, but also the preceding and subsequent processes of manufacture. The production of the weave room depends in great measure on the good work done in the preceding processes. For this reason the utmost care should be given to the manufacture of the yarn and its preparation for the loom.

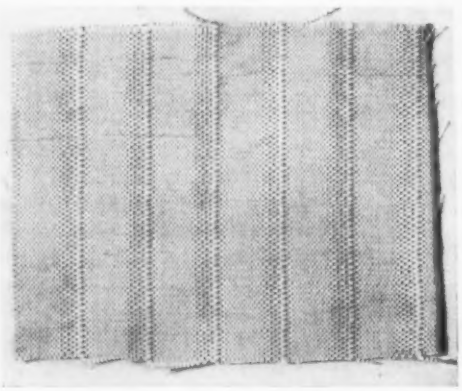
He should pay special attention to the management of the loom fixers. If they do good work he should tell them so, as this goes a long way toward stimulating them. Under no circumstances should he allow the fixers to be rude and discourteous to the weavers. Every fixer should be made to understand that he must respond promptly and pleasantly when the weaver calls him. The trouble may be trifling and caused by the weaver herself, but regardless of this it is the fixer's duty to go to the loom, investigate for himself and apply the remedy.

In 1800 the population per square mile in the United States was 6.41; in 1906 it was 27.71.

ENGLISH NOTES.

By Our Special Correspondent.

To judge from advance arrangements this is to be, in England, a summer of mohairs. In the best examples the filling is single, instead of two-fold and this helps the fabric to drape. In place of plains we have fancies in which a phantom stripe is made by simple spacing of the warp. At intervals alternate cotton warp threads are missing and the longer float of the filling provides the effect. Further variety is achieved by means of



ENGLISH MOHAIR STRIPE.

warp threads grouped to form a thin cord down the piece. Finishing has been improved and in black and colors fascinating appearances are got out of good mohair at prices round 50 cents.

* * *

News that the Belfast flax spinners are on short time is not to be read as sheer misfortune. The curtailment is a concerted one designed to maintain the very high profits that have ruled lately. Weaving is in separate hands and language fails the linen weavers to describe the iniquity of spinners. Especially since November the linen cloth business has become unprofitable and manufacturers are hesitating to put in new designs pending a solution of American difficulties.

* * *

A better business in dog-skin, caracul and kindred pile fabrics has been doing for a while past. A consequence has been a con-

siderable demand for spun tussah silk yarn. We are on the verge now of a revival in the imitation silk seal trade which has hibernated for eighteen years. Inquiries for these goods have come from many quarters to a leading Bradford maker and sampling goes on apace. Many fingers were burned when sealskins last went out of fashion, and few but spinners did well out of the last boom. None the less are the new prospects looked on with satisfaction and a strong run of pile cloths is held likely. Brokers report that supplies of waste tussal silk are short and that some Chinese production has been looked forward well into this year.

* * *

One way in which worsted serges for cloaks have been cheapened in England while wool is high, has been by employing carpet yarn. The hardness of Blackfaced and Irish wool has been counteracted by a finish which bursts out the fiber. The bright material gives a smart look to the fabric and the weave is not close enough to make the goods stiff. Dissected, it is seen that every thread has a thick beard of fibers round it. The effect is got at a surprisingly low price.

* * *

Analysis of the balance-sheets of 100 Lancashire cotton spinning companies discloses a profit on share capital of over 35 per cent. and a profit of 23 per cent. on all the money engaged. Nor are the bunch the newest and most profitable concerns. The dividends declared by 80 companies not disclosing total profits bespeak a better year still. The figures supply the reason for the spinning-mill extension that still goes on and that has added 122 mills with 11,000,000 spindles to the Lancashire total within the last two years.

* * *

Looms in the cotton trade are calculated to be 90,000 more than four years ago and cloth orders are not booked far forward and margins are not wide. Indeed the largest firms in Burnley—in which town there are said to be more looms than in any other in the world—have curtailed hours. The motive is to stiffen the cloth market. Pressed by circumstances weaving masters there are proposing to combine to suppress the overdamping of yarn out of which spinners are making some of their 35 per cent.

* * *

Weaving operatives in the cotton trade propose a movement to put down the system of fines for faulty work. Ring-spinning hands, at the grave peril of a stoppage of all spindles in Lancashire, are pressing for a rate of wages based on the price of 75 cents per 100 spindles doing 36s counts. By their International Federation the united cotton workers are seeking to institute an international strike fund paying strike benefits on a low scale. Details remain undetermined, but a war-chest of $50,000 is proposed.

* * *

The arrangement to buy the Crawford plantation at Heathman, squares with all the professions of the International Spinners' and Manufacturers' Federation. The purchase is experimental. As many spinners as convenient are to hold shares. The estate is thought good and likely to grow automatically in value. It is large enough to put preconceived theories to the test of practice. The purchase is modest compared with some anticipations, but from experience in its management all parties may hope to learn something.

* * *

The perfect marking-compound for sheep which shall be legible after all weathers and shall come away freely in hot water without staining the wool is being sought for still. Several chemical manufacturers have been incited to attempt the problem by the Home Wool Buyers' Association. Any amount of free advertisement among farmers is promised and the bait of a fortune for a discovery is held forth yet. Use of tar for branding involves what must be an immense loss in the aggregate and it seems worth while to remind ambitious chemists that there are in the world certainly 400,000,000 sheep—and no perfect marking mixtures.

* * *

A curious by-effect is attributed largely to the Dingley Tariff. The duty on wool is conceived to have had its influence in improving the cleanliness of the English clip.

All buyers pay better for well-conditioned stock, but especially those who have in mind a 13-cent duty on straw, dirt and grease. The reality of the improvement this year is vouched for by several individuals, but it may not encourage British farmers to continue in well-doing to find their wool down 6 cents a pound. For some of this the American depression is directly responsible and the protracted decline has had bad effects on the profits of dealers in English material. Quantities have been sacrificed to find money for New York defaults in payment.

* * *

The great textile combines, the largest cotton manufacturers and merchants and all the leading textile machinists support a petition to the Chinese Minister in London. China is on the point of adopting a uniform system of weights and measures. The petitioners ask that the new standards be the English ones or multiples of those, point out that Anglo-Chinese trade runs into $100,000,000 a year and that English standards are almost universal in application to international business. What is important to England is important to America in a case of this kind and there may be grounds for similar representations.

* * *

Warnings from New Bedford to Lancashire cotton weavers, cautioning them against emigration to America are probably superfluous. One issued by the Cotton Weavers' Protective Association is published at a time when the papers overflow with accounts adverse to emigration to either Canada or the United States. Already the public conceives the situation to be worse than it probably is and news of reduced outputs at Fall River and the return of immigrants in large numbers must be at least as deterrent as union notices and less open to suspicion.

* * *

In the name of Clarke, the Sewing-cotton Trust is building new mills in Portugal to deal with the competition of the Relogio brand. Prices in mid-December remained at the low rate established in May which enabled Portuguese consumers to buy cotton at half the price fixed to Americans. An extraordinary feature of the price-war is that quotations for low numbers are 40 per cent. higher than for fine numbers. While 10s Elephant brand costs 5,100 reis (200 yds. × 144) the No. 150 costs 3,120 only and a similar discrepancy is shown on the Trusts' Phantasia brand. The spinners of Relogio thread make prices 5 to 10 per cent. below Coats and thus far have not been taken into the Paisley fold.

* * *

News that the three German color firms, the Badische, Bayer and Treptow works, are forming a closer amalgamation, follows on the announcement that Meister Lucius Bruning (with L. Cassella & Co.) are putting down works in England to make synthetic indigo. The latter is a consequence of the new law making it necessary to work patents in England in order to hold them. The former accrues as the result of two years of profit-pooling and joint administration.

* * *

Religions have a perceptible influence on textile manufacture in Europe. Bradford as well as Germany and Switzerland all have interests in the traffic in black worsted stuffs for the Catholic countries. Here there are a few clothiers catering exclusively for convents and monasteries and convent schools. The robes of priests of all denominations consume an appreciable quantity of cord or rep or paramatta. Prayer mats and praying shawls are exported largely to the East and there is no end to the antipathies and preferences of persons of particular creeds for particular colors. Merchants rather than manufacturers in England specialize in this knowledge and lay themselves out to meet the religious demand.

* * *

The kind of labor hardest to get for English mills is juvenile labor for spinning. Some reformers would make it harder yet by increasing the rigor of the medical examination required by statute. Only 3/4 per cent., it is found, of all applicants are rejected by the certifying surgeons. Of 700 children known to have been exempted on the score

of bad health from school, only an individual one was deemed unfit for the mill. Indeed the physical examination is very perfunctorily done and there is nothing to show that the medical selection grows sharper as the commercial selection of applicants grows weaker. The matter is sure to receive attention, as neither army nor any other authorities are content with the physique ordinarily reached by adult operatives in Lancashire.

* * *

In the days of home spinning in Scotland it was noted that one man's yarn invariably ran clear off the spool in weaving, making no waste. His employers sought explanation, but Tammas was "no for sayin' a'thing aboot it." Money was mentioned and, thinking to deal handsomely, the employer named £100. The offer was rejected with blasphemous violence. One pint of beer daily as long as he lived (costing 4 cents) and not a bawbee less, were Tammas's terms. Coming to the actual secret the man rubbed an empty spool with something from his pocket. "Mon, Mon," he reproached them, "an' did ye never think o' chalkin' 'um?" The yarn-saver was a lump of French chalk.

THE DISCOVERY OF "KYRLE" CLOTH.

Blackington, Mass., Jan. 24, 1908.

Editor Textile World Record:

I notice in the January issue of the Record an article telling how the late Mr. James Booth accidentally discovered "Kyrle" cloth, some 15 years ago. This cloth was discovered more than 30 years ago in Galashiels, Scotland, and was then called "Curl" cloth and used largely in overcoatings. The writer was then designer for Mitchell, Coats & Co., and introduced overplaids of mohair yarn in a rather loose woven fabric, which on fulling showed up in curl effects.

He then made a series of patterns woven 1 wool 1 mohair, which after finishing showed a curl all over the face of the goods. Designs were made in plain curl effects, also in figured designs, both of which had a large sale and were considered quite a novelty. It was some years before any other manufacturer discovered the secret of making this curl cloth.

Mr. James Booth may have discovered the "Kyrle cloth" in stockinet fabric, but the same thing was used many years before by several manufacturers in Galashiels and overcoatings with this curl effect were shown at the Vienna Exhibition about 1877.

J. M. Masson.

TURKISH TOWEL WEAVES.

BY R. DANTZER,

Professeur at the Societe Industrielle d' Amiens.

(From l' Industrie Textile.)

These cloths require a special treatment in weaving. They are made only of cotton, which becomes more absorbent the more it is used. The fabric has loops scattered irregularly over the surface, lying in confused order and forming an appearance wholly different from the pile on velvets. These goods may be woven either in long cuts or in sections separated by fringes and corresponding to the length of the towel. The warp of Turkish toweling is woven from two beams. The first forms the ground work and is woven under a constant tension as with ordinary fabrics. The second forms the pile or loop and is woven under an irregular tension. The tension is removed entirely when the loop is formed and restored when it is desired to have the pile warp form part of the ground.

The length of the pile warp is from 6 to 8 times that of the ground warp, varying with the length of the loop required. Generally the filling is finer than the warp. These fabrics are woven with or without a pattern. The plain goods are made with loops on one side or both sides of the cloth. Attempts have been made to weave these goods with the loops on one side only and then cut them on the shears to form a velvet pile. So far, however, the process has not been a commercial success.

Fig. 1 shows the weave for a Turkish toweling fabric with the loops on one side only.

Fig. 2 shows a section of the resulting fabric. The last three picks are inserted some

distance from the cloth. These spaces vary with the length of the loop desired. By a strong blow of the reed the 3 picks are driven against the cloth forming the loop.

Figs. 3 and 4 represent the weave and section of the fabric with the loops formed above instead of below the cloth in weaving.

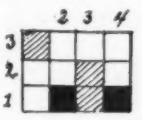


Fig. 1.

Fig. 2.

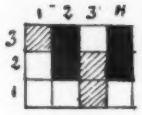


Fig. 3.

Fig. 4.

Fig. 6 is a weave in which the loop is formed every 4 picks. In order to facilitate the slipping of the filling the warp is sometimes treated with an oily or soapy solution.

Fig. 6.

Fig. 7

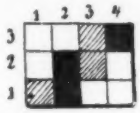


Fig. 8.

At Fig. 7 there are two threads for the ground work to one for the loop. The number of weaves that can be used for these fabrics is limited because it is necessary to weave the ground either with a plain or rib weave. It is useless to use any other weave as it necessitates an increase of harness without any corresponding advantage. The loop is formed every 3, 4 or 5 picks at the most; this number must be a multiple of the picks in the ground weave. The warp is reeded according to the pattern. If the warp is dressed 1 ground, 1 loop, it is reeded 2 in a dent. Cloths with loops on both sides require less care in weaving. A weave frequently used is shown at Fig. 8. The ground

Fig. 9.

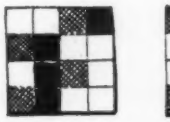


Fig 10

Fig. 11.

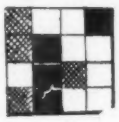


Fig 12.

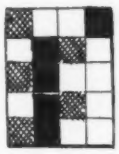


Fig. 13.

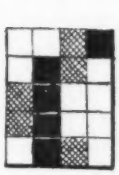


Fig. 14.

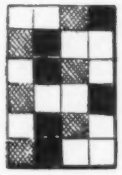


Fig. 15.

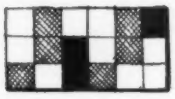


Fig. 16.

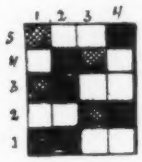


Fig. 17.

threads intersect to form a 2 and 1 rib; the loop threads work in opposite order. Fig.

Fig. 18.

9 shows a section of the resulting fabric. Three picks forming one weave pattern are shown at some distance to the right of the cloth and in position to be driven up to form the loop.

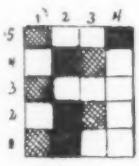


Fig. 19.

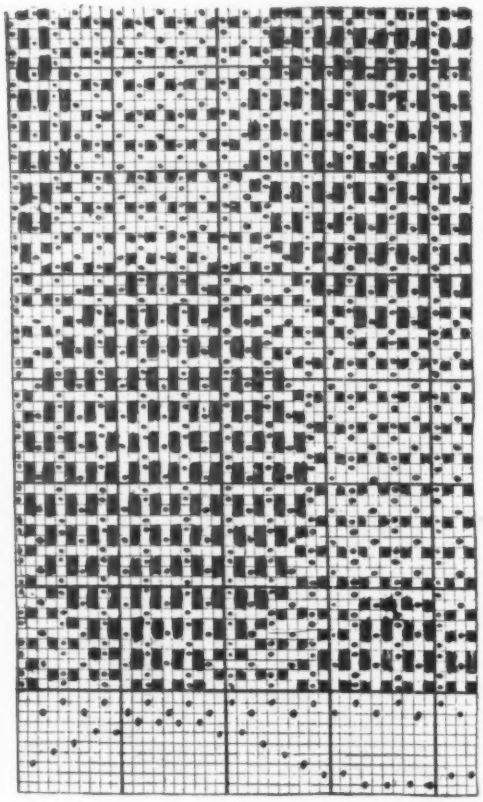


Fig. 21.

Figs. 10, 11 and 12 show weaves, each with 4 picks. The adjacent loop threads in these weaves intersect the filling in opposite order. These weaves vary somewhat in the ground work. In Fig. 10 the ground is plain. At Fig. 11 the ground is woven plain with two picks in a shed, while at Fig. 12 the ground is woven with a ribbed weave. At Figs. 13 and 14 the loop warp is stitched every 5 picks. This is the longest loop ordinarily used, as any increase involves difficulties in driving the filling into the cloth.

Fig. 20.

At Fig. 15 the loop warp is woven as in Fig. 8 but the ground is woven plain. This necessitates 6 picks in a pattern; in weaving the pattern is driven into the cloth in two sections of 3 picks each.

At Fig. 16 the warp is dressed two ground and one loop. In all of the weaves so far given the loop is stitched but once in the pattern.

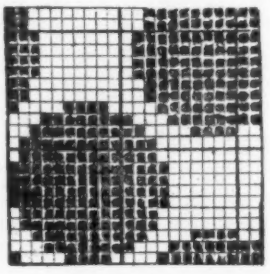


Fig. 22.

Fig. 17 shows a weave in which the loop threads are stitched twice. A section of the resulting fabric is shown at Fig. 18.

It is possible to weave a double faced fabric with loops of unequal size. Fig. 19 shows the weave and Fig. 20 the section of such a fabric in which the loops float over 4 picks on one side and over 2 picks on the other side. By dressing the pile warp 1 white and 1 red it is possible to have the

loops all white on one side and all red on the other. By employing suitable patterns stripes can be made.

The drawing-in draft is shown at the bottom of Fig. 21, 9 harness being required. The first two harness carry the ground warp; the pile warp being drawn on the other 7. To adapt this for the power loom it is necessary to use the draft shown at Fig. 23 which includes all of the threads of different intersections in Fig. 21 and arranged in the order in which they are drawn in.

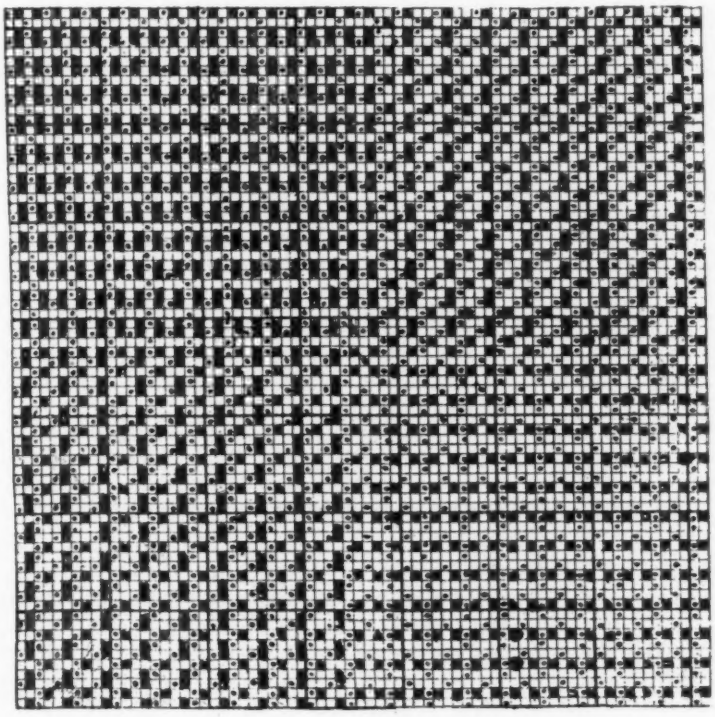


Fig. 23.

Fig. 21 shows a weave for making a pattern in Turkish toweling, a sketch of which is shown at Fig. 22. The spots in the design are woven with the weave shown at Fig. 3, the loops being on the face. The ground is woven as at Fig. 1, with loops on the back.

In designing such patterns it is necessary first to make the sketch as shown at Fig. 22. This is made with a number of threads equal to the number of pile threads in the whole pattern. The number of picks in the sketch is equal to the number of repeats of the ground weave. In this case each pick at Fig. 22 corresponds to 3 picks in Fig. 19. Consequently the sketch has 22 warp thread and 22 picks and corresponds to 44 warp thread and 66 picks in the complete pattern at Fig. 21. The pile threads are all woven from one beam; the ground threads being woven from another beam.

The total value of shipments of domestic merchandise from the United States to the Philippine Islands in the year ending June, 1907, amounted to $8,657,956, of which $7,132,400 worth was sent in foreign vessels.

The textile trade of the United States with Alaska in the year ending June, 1907, was represented by cotton goods to the value of $644,445, and woolen goods to the value of $921,565. The largest items in the total trade were manufactures of iron and steel at 3 1/2 millions of dollars, and meat and dairy products at 2 millions.

A YARN EVENER FOR MULES.

An attachment for woolen mules, recently patented in this country, is designed to prevent the variation in the size of the yarn which ordinarily takes place as the mule bobbins fill up. Fig. 1 is a plan of a portion of a mule equipped with the device; Fig. 2 is a perspective view of the evener removed from the loom. The inventor in describing the attachment states that the mule ordinarily delivers the same amount of roving or stock at each draw, from the time the bobbins are started until they are full; because of this, the yarn gradually becomes heavier, from the time the bobbins are about three-quarters full until they are entirely full. This increase in the size or weight of the yarn, while the last quarter or part of the bobbin is being filled, is due to the fact that the yarn will have to stretch less than during the filling of the first three-quarters of the bobbin, —hence the yarn upon the top or outer portion of the bobbin is invariably coarser or heavier than that upon the bottom and middle portion of the bobbin.

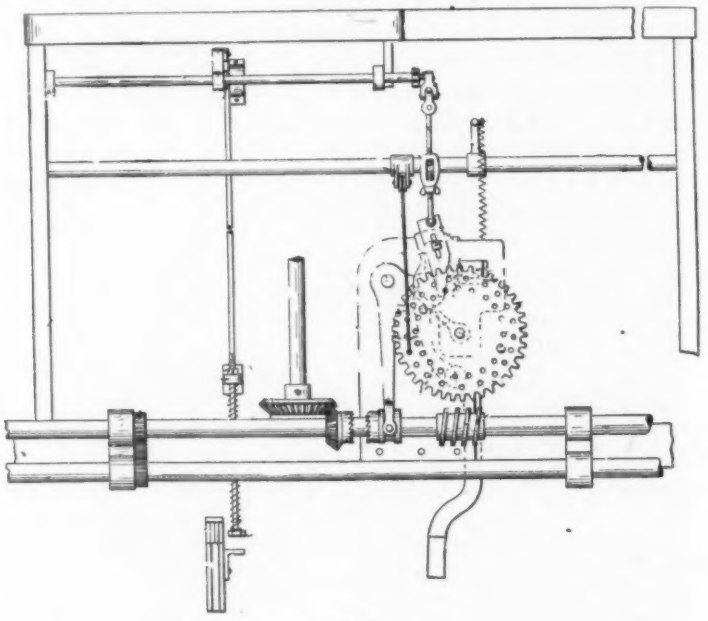


FIG. 1.

The object of the attachment is to give uniformity in size and weight to the yarn; this is accomplished by providing between the building shoe and the roving wheel means for gradually varying the arc of rotation of the roving wheel,—and hence gradually diminishing the length of the roving paid out by the rollers at each draw.

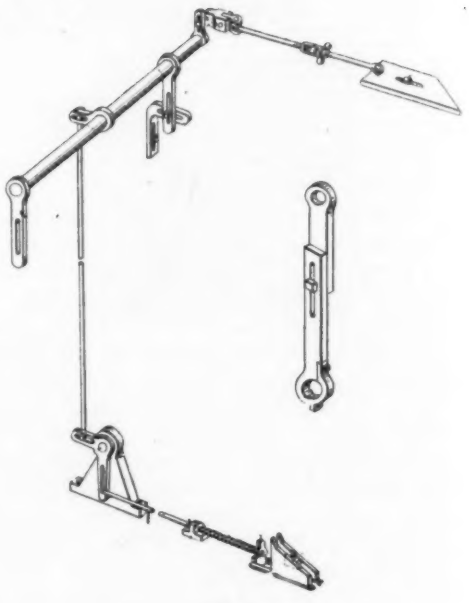


FIG. 2.

The operation of the attachment is as follows: The trip is so adjusted on the build-

ing shoe that when the yarn upon the bobbins begins to change in size and weight, that is, when the bobbins are about three-quarters full, the trip will engage the head and move a push rod against the tension of a spring. This movement of the rod actuates a bell crank, which rocks the shaft. The movement of the shaft will gradually shift the stop slide or plate and move it forward a certain distance at each movement of the shoe, causing the pin to engage the gradually widening edge of the plate so that the arc of the rotation of the roving gear will be gradually diminished, and hence the feed of the roving gradually cut off.

As the stop slide is gradually moved inwardly, its beveled edge will engage by the pin a little earlier at each succeeding oscillation of the gear, hence the time during which the shaft drives the rolls will be gradually diminished and the paying out of the roving at each draw correspondingly diminished. By providing the various adjustments between the connected parts of the attachment, their movements may be properly timed and controlled to effect the desired results.

WASTE IN COTTON MILLS.

BY M. A. COOPER.

Some time ago the writer noticed in your paper an article on waste, wherein it stated that the average percentage of waste in the cotton mills of this country, where a fair grade of cotton is being used for medium numbers, would be about 15 per cent.

As this is considerably in excess of what would be tolerated in a well managed mill in the old country, it may be interesting to your readers to give a few particulars as to how and where waste is made, and how extremely large percentages in any particular process can be avoided.

The first point to receive attention is to see that every bale of cotton is carefully weighed, and the weight recorded in a book. Next weigh the tares and bands from each bale used, and entered in the same book. These weights all require comparing with the invoices to see they are correct, as it may cause a percentage of loss to be charged against the working in the mill, whereas it has arisen in the tares, bands, or deficient weight.

Being satisfied that all is right so far, the next point is to examine for excess damp, and though this trouble cannot be altogether avoided, it is not a difficult matter to stove 100 lbs. of cotton from the bales, and reweigh after it has been exposed to the atmosphere a reasonable time.

We will begin with the opener as being the first machine where there is any serious amount of loss; it requires great attention to see that it is doing its work in an efficient manner, and not allowing any fibre to get into the dust flue, or good cotton among the droppings. These droppings should be closely examined regularly to see that they are free from cotton, as "fat droppings" are a source of great loss, and can be prevented with care.

It is most important that the right sort of grids are being used, in order to make as little loss as possible in these machines, and yet remove as many of the heavy impurities as possible.

The pickers or scutchers require the bars to be set very accurately, to prevent any excess loss. The distance between the beater blade and the nip of the rollers should be very carefully arranged to the best advantage, as a great deal of waste may be made at this point. Each stroke of the beater blade should take the cotton off clear and straight. If it is "dragged" off by the blade the staple of the cotton is being injured, and broken staple causes waste. Also see that the fibre is not being drawn into the dust flue by the fans, which should not be run at an excessive speed. Periodical visits to the dust chamber to examine the quality of the flue dust should be made. Particular attention should be bestowed on the way the cotton is blown on the cages of these machines, and if it is not evenly distributed all across the cage there is something wrong; possibly there is an accumulation of cotton causing an obstruction, or the casing at the ends of the cages may be defective, causing the cotton to "drag" and the draught to get diverted, which will make an uneven lap.

The more perfect the laps from these machines, the less waste there will be in the succeeding processes, as unevenness in the laps is never entirely eliminated, causing more or less waste all the time, owing to breakages in the sliver, roving and yarn.

Close attention to the proper setting of the feed plates, mote knife, and licker-in of card will prevent waste. Also see that the teeth of licker-in are in good condition. Light carding and systematic stripping will assist in reducing the quantity of waste on these machines.

The amount of waste made up to this point —the carding engine head—on cotton grading strict good middling averages 8 per cent. As the loss on the next three processes—drawing, slubbing and roving—is infinitesimal, owing to the class of waste made being suitable for re-working, a percentage of 1 per cent. amply covers the loss, with a further 1 per cent. made in spinning, winding, reeling and making-up. The sweepings off the floor must be carefully picked and no clean cotton allowed to pass, and the winders', reelers', and beamers' waste should be weighed and examined every day, to keep it down to the lowest possible point, without hampering the help.

The difference in loss in waste between 10 and 15 per cent. does not appear a very serious drawback, but looked at from another standpoint it is 50 per cent. in excess of what it can be reduced to. Calculated on this basis the loss becomes startling. Take for example a mill using 100,000 pounds of cotton per week:

100,000 lbs. cotton, less 10% waste =	
90,000 lbs. yarn at 25c. per lb. =	$22,500
100,000 lbs. cotton, less 15% waste =	
85,000 lbs. yarn at 25c. per lb. =	21,250
Per year, $65,000; or weekly	$ 1,250

Nothing should be allowed from this calculation for the value of the extra amount of waste made, namely, 5,000 pounds weekly, as this is more than balanced by the loss of 8 per cent. cellarage on this 5,000 pounds, and the decreased value of the yarn produced. Where there is excess of waste there is irregularity in the yarn, consequently deterioration in quality. A reduction in the price of the yarn of one-fourth of a cent along with the aforementioned loss, amounts to considerably more than the value received for the extra 5,000 pounds waste made weekly.

From this statement the importance of particular attention to prevent excess waste (in whatever proportion) in cotton mills is apparent, and it is well worth due consideration. In times of "close margins" such attention will convert what would otherwise be a loss into a profit, which is the goal to be aimed at.

ESTIMATING THE COST OF TEXTILES.

In reply to an inquiry for a method of estimating the cost of manufacturing textile goods, a correspondent in "Leipziger Monatschrift fuer Textil-Industrie" writes as follows:

In every mill there is a fairly constant number of workers such as spoolers, warpers, sizers and weavers who are paid by the piece. In addition there are managers, machinists, carpenters, blacksmiths, and watchmen, whose number seldom varies. Under such conditions the best way is to reckon the cost per loom for each style of goods to be manufactured. For example, let us assume that the total cost is $137.50 per year, and the annual production 9,000 yards per loom (30 yards × 300 days); this will make the cost ($137.50 ÷ 9,000) = $.015 per yard. If the production is 12,000 yards per year the cost will be $.011 per yard.

This method is reliable, because the contracts for goods cover six months or more, making the production of the looms fairly constant during the year.

My mill has 200 looms running on print cloths made of 36s warp and 44s filling with 18 to 24 threads per quarter inch in the warp and 16 to 20 picks per quarter inch in the filling. The warp is sized about 10 per cent. The power consumed amounts to 80 h. p. with a consumption of 1,162 pounds of coal in an 11-hour day. The mill has a floor space of 14,620 sq. ft. or 73 sq. ft. per loom. The space covered by the buildings cost $1.16 per sq. ft. for the land without the ma-

chinery. A space of 1,075 sq. ft. not covered by the buildings cost $.46 per sq. ft. The equipment, including engines, boilers, and all machinery cost $195 per loom. Ten per cent. is allowed for depreciation, 5 per cent. for interest and $11.40 for the cost of coal per ton. The operatives employed are as follows:

	COST PER DAY.
1 superintendent	$2.50
1 overseer	1.25
2 beamers	1.50
1 sizer	1.25
1 sizer's helper	.62
3 warpers	1.88
6 spoolers	2.70
4 drawers-in	1.80
100 weavers	50.00
8 apprentice girls	2.00
1 cloth room man	1.25
2 helpers	1.25
1 shipper	1.25
1 day watchman	1.00
1 night watchman	1.00
1 machinist	1.00
1 helper and oiler	.50
Total	$72.75

I have calculated the wages of the weavers at 50 cents per day, with a loom production of 80 per cent., each weaver running two looms.

The daily production is classified as follows:

100 looms, 72 picks per inch	3,984 yards
50 looms, 72 picks per inch	1,770 yards
50 looms, 80 picks per inch	1,593 yards
Total daily production	7,347 yards

The cost of labor, interest and depreciation is calculated as follows:

Interest per day, 5 per cent. on $17,500	$2.40
5 per cent. depreciation on buildings, $10,200	1.40
10 per cent. depreciation on machinery, $37,440	10.68
5 per cent. interest on last item	5.34
Daily pay roll	72.75
Fuel	6.60
Oil	1.25
Supplies	1.25
Total	$101.67

With a daily production of 7,347 yards the cost per yard will be $.0138. I prefer to calculate the cost of one loom at $152.50 per year instead of figuring the cost of 200 looms at $101.67 per day.

If, as is likely to be the case, the production drops below 80 per cent. by reason of lack of weavers, poor weavers or bad work, the cost will be correspondingly increased. For example, if it drop to 70 per cent. the daily production of the 200 looms would be 6,428 yards or 32.14 yards per loom, giving a yearly production of 9,642 yards per loom. Then: $152.50 ÷ 9,642 = $.0158 per yard.

This method is not mathematically exact, but it gives results that are reliable in practice.

THE GERMAN STANDARD OF LIVING.

Editor Textile World Record:

In your January issue I find a letter signed "German American" which interests me very much. Your answer to this letter is very good. The writer was born and raised in Chemnitz, Saxony, and left at the age of nineteen.

I remember well, especially in the years 1890 and 1891, that the horse meat butcher did a thriving business in our town. But I wish to add here that I am not guilty. Mr. "German American" certainly overstepped himself in saying that the wages in German mills are as high or nearly as high as ours. Considering everything, and supposing he was right, he still omitted to state that almost one-sixth of the income of workers in Germany has to be paid back to the Government for taxes, and different kinds of insurance, while in this country no such expenses exist to lessen the income of our workers.

I also notice papers of recent date that the taxes in Germany will have to be raised to meet a threatened deficit. This is certainly worth mentioning.

SAXONY.

Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, any pertinent inquiry pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring ,not for publication, but as an evidence of good faith.

For reply to questions that are not of general interest to readers of textile journals, such as those relating to the composition of yarns, analysis of fabrics, etc., we will charge the enquirer with the cost of the investigation.

Brown Stains on Cotton Goods.

Editor Textile World Record:

(a) What is the reason cotton goods turn brown or weather stained after they have been wet out and exposed to the air? Would weather stains have any injurious effect in dyeing?

(b) What would be the effect of (1) too little and (2) too much Glauber's salt in a direct cotton dye bath? Would either cause irregular blotches on the piece?

(c) In goods where paraffine has been used in the size what kind of stains would show up when dyed with a direct or basic color?

Douglas (909).

(a) This fault occurs more frequently in hot weather than in cold, more in summer than in winter; also more in rooms or closed places that are over heated. The most exposed parts of the goods are attacked first, such as selvages on the rolls, the overhanging laps on trucks or wagons, etc. The cause is due to the temperature of the air, which produces a chemical change in extracting the moisture from the goods and leaves the brown or yellow stain behind. This stain can be easily removed in a few minutes by pouring boiling water on it.

In regard to the injurious effect of these weather stains in dyeing I should say that if the goods were dyed at a temperature above the boiling point there would be no difficulty. The boiling liquor in the dye bath would remove all traces of the stain. However, it would be far better to subject the goods to a dose of boiling water before entering the dye bath; it can be sprinkled with an ordinary watering can and after a few minutes the stains will disappear. If the dyeing is done below the boiling point, I think it would be doubtful if the stain disappeared.

(b) Glauber's salt is always used as the developer of a dye; too little would not develop it quickly enough, while too much would develop it too quickly, thus making too heavy a shade besides exhausting the strength of the dye bath before the required amount of goods have been through.

(c) When dyed with a direct dye a dark stain would appear with a kind of cloudy place around the edge, darker than the body of the stain. With a basic color the stain is not so clear, appearing to be a spot where the dye has settled and so making the goods a different shade in that place than the rest of the piece. Horace Kenyon.

(a) The reason goods turn brown after being wet out and exposed to the air is due to the action of the air, or the oxygen in the air, on the impurities the cotton contains. Some time ago I examined a truck of cotton goods that had been wet out over forty-eight hours and the brown stains were only on the outside, not penetrating to the interior of the pile, which was as clean as when wet. The action seems similar to the rusting of iron. I never saw the stains on a fully bleached piece of cotton either dry or wet.

I never had any trouble from these weather stains and in an experience covering several years on linings, twills, sateens, etc., I never knew of a stain from this cause. Unless the goods are allowed to remain wet for a very long time the stains will disappear in boiling water. They appear mostly in very warm weather. The stained goods that I have noticed dyed clear without showing the slightest stain. Goods should not be wet out very long before dyeing; it is my practice to wet not more than one day's work in advance, and if for any reason I cannot dye the goods as arranged I give them a wash to freshen them and prevent stains and mildew. This is always done with goods that have been waiting several days to be dyed or that have to lay over Sunday.

(b) The effect of too little Glauber's salt in the dye bath would be merely to increase the cost of dyeing. Direct dyes need no mordant and the salt or Glauber's salt is added to the dye bath to increase the specific gravity of the bath, thereby forcing the dye from the dye solution on to the goods, so that if the proper amount of Glauber's salt were not added the result would be that more dye would remain in the dye bath, thereby increasing the cost of dyeing. The use of too much Glauber's salt would have the same result; it would increase the cost of dyeing, but in an en-

tirely different manner. Too much salt produces the effect known as "salting out," and precipitates the color to the bottom. This is not only true with the direct colors, but is also true with some vat colors. I never knew Glauber's salt to cause irregular blotches or stains of any kind and can see no reason why it should. Thousands of tons are used in dyeing cotton and wool and also in finishing as well as in sizing preparations and I never heard of it doing any injury whatever.

(c) I never happened to come up against paraffine in size. Why a dresser should use an insoluble compound like paraffine is unaccountable when there are plenty of animal or vegetable fats or oils that would not only do as well but much better. I have never known of anything better or cheaper than a good grade of tallow for this purpose. The use of paraffine cannot be condemned too strongly; great damage is caused by its use. It is the bane of bleachers and dyers. Paraffine would act as a waterproofing agent or as a resist to any color, and in fact some waterproofing recipes call for the use of paraffine. Being a water repellant it will of course resist dye solutions, whether direct or basic, and dyers and bleachers should do all they can to prevent its use by sizers by calling the attention of those in authority to the great damage resulting from its use.

Baumwolle.

Machines for Dyeing Sulphur Black.

Editor Textile World Record:

Please advise us whether or not sulphur black dyeing machines built entirely of iron are affected by the chemicals used in the dye bath.

Decatur (917).

Machines built entirely of iron resist completely the action of all sulphur blacks and the chemicals used in the dye bath. There are in operation at this time machines built originally for sulphur blacks, and used continuously since 1894 with only such repairs as were due to wear of parts, and not to corrosion.

Machines built partly of wood usually give out in the tank or vat part; and if such machines are provided with wooden rollers, these latter require replacing about every two years.

Brass or bronze fittings should never be employed in constructing machines for sulphur colors because the chemical action of the always present sodium sulphide is very rapid, and aside from the corrosion of the copper alloy, the color itself is partially destroyed.

For warp dyeing, or piece-goods dyeing, the ideal machine is one made entirely of iron, with guide rollers and all fittings made of iron, while for skein dyeing, the same idea should be also carried out, except that the usual wooden dye-sticks may be substituted for iron pipes. I have always recommended, however, the use of bent dye sticks made of iron pipe, so bent that the skeins are always below the surface of the dye liquor, as shown in the illustration, to prevent oxidation of the liquor on the yarn.

Beta-Naphthol.

I have used a sulphur black dyeing machine over a year and the chemicals have not made the slightest change in it. Why should they? Sodium sulphide salt and sal soda are the chemicals used. The dye bath is alkaline, and alkalies never injure iron. Acids would corrode it as they act very quickly on iron. The iron machines used for sulphur black dyeing have some faults, but their good points far outweigh their bad ones and no one dyeing sulphur colors should be without a machine of modern construction for this purpose. Cotton can be carded much easier if the stock is dyed in one of these machines as it leaves the fibers undisturbed and in almost as good order as when they entered the dye bath. An iron vat is not only the most efficient, but it is the most economical. The chemicals eat wood after a time and copper has an injurious effect on the dyeing.

Baumwolle.

Stains on Knit Goods.

Editor Textile World Record:

I am sending you a sample of knit cloth which is spotted. These goods are boiled in an open cypress kier with vomit pipe for eight hours with one per cent. of caustic soda. We have varied the amount of caustic, but find it makes little difference in the appearance of the stains. We would like to know if these stains are caused by the water we are using, or by the caustic, or if it would be possible for any stain to come from the wood of the kier. They will not wash out with soap or bleach out with chloride of lime, and when dyed they show in light brown spots or streaks. We also enclose a piece of the hard scale that accumulates on the false bottom of the kier and would like to know if this is from the water, or just the natural dirt and fiber from the cloth.

Concord (934).

In the first place "Concord" is working under difficulties in boiling out in an open kier with a vomit pipe. I would advise boiling in a roll dyeing machine, or in a kier under pressure. To boil

eight hours is a waste of steam, as one hour is sufficient on these goods. I would also advise the use of some boiling out compound instead of the caustic soda; there are several of these compounds on the market and any one of them is preferable to the caustic soda. The scale is the vegetable matter from the goods and the dirt from the water that have settled to the bottom of the kier. I have sometimes used the open kier for boiling this class of goods, but never got so good results as when using the roll dyeing machine. After dyeing the goods for thirty minutes in this machine and then bleaching them, they come out clean and soft and free from stains and specks. Bay State.

If these goods are to be dyed, why are they boiled in a kier at all? I have dyed tons of goods for underwear and never boiled a pound in a kier. The surest way is to get the rolls in the grey in front of the machine, bring the water to a boil and run in the amount of pieces the machine will hold. Let them boil for, say, fifteen minutes, then run off about two-thirds of the boiling water; fill the machines with cold water and then add the caustic, and I am sure everything will come out all right. Winthrop.

In my opinion the chief cause of the trouble with these goods is imperfect washing after the goods are boiled, as the ordinary kier stain is quite apparent. To prevent this kier stain the goods should be washed thoroughly so as to remove all foreign substances that accumulate in boiling. These stains are formed by the water pressure being insufficient to penetrate the goods thoroughly during the washing process. Any foreign substance on the goods which is not thoroughly removed during the boiling will cause stains similar to those on the sample enclosed. We wash our goods for an hour and a half at a pressure of 30 pounds and always have first-class results. If "Concord" will use one-half per cent. of caustic and one-half per cent. of bleaching assistant, I think he will obtain better results from the boiling process.

I enclose a sample of goods with the stains entirely removed, which we have done by a secret process in use in our mill.

The hard scale that accumulates on the false bottom of the kier is a combination of wood chips and caustic soda, which crystallizes and forms this scale with the addition of natural dirt.

Morrison.

So many causes difficult to locate might produce these stains that a man might follow several different ones for a long time and then find he was on the wrong track. Still it is well worth studying, for we can find something new almost every time. To begin with, no matter what class of goods I am working on, I have always had about 50 per cent. more trouble with stains when using the caustic bleach than with any other; this is especially the case when the goods are to be dyed. With a straight caustic bleach one per cent. of caustic is not too much.

One cause of stains similar to that on the sample submitted is leaving the kier short of liquor during the boil. The goods should always be covered with liquor during the boil, the reason being that it prevents the residue and dirt extracted from the goods and water, which forms into a dirty foamy scum, settling on top of the goods in the kier, and as the action of the boil sucks the liquor down this dirt is drawn back into the goods. This can be prevented to a great extent by keeping the goods covered with liquor and also by flooding the kier upward after it has boiled and before letting off the liquor.

Another possible cause is neglect to keep the kier well limewashed inside. This is especially so if the kier has been in use a long time and become black with age. Then is the time it requires watching, and at the first sight of a bare place in the wood the kier should receive a good washing with lime to prevent these stains. The aging pits should be well looked after also. I would further advise putting a few layers of burlap over the goods in the kier before beginning the boil.

I am reminded of a difficulty we had at one of the mills where I worked. We had been troubled with stains for a long time; slight ones at first, but later very serious ones. The stains always showed up in the boil. We had looked everywhere for a possible cause and could not find it. The bleacher was discouraged; the manager was raging. A young German chemist, an expert on stains, was brought in and spent four days at the mill sampling this, testing that, analyzing the water and all the ingredients used in the process, examining the pipes and fittings of the kiers, and trying several processes to remove the stains without success. A few days after he had gone the cause of the trouble was found by accident. A young man was operating a calender which was driven by its own engine. He noticed a bad leak at a joint near his valve and all around as far as the steam could reach on the iron work a scum had formed almost like frost. An investigation being made it was found to be the cause of all the trouble. This scum was produced by a patent chemical that was used to clean off the scale in the boiler, which was all right providing it was used in the right proportions, but the fireman had

been using a good deal more than was required. Possibly something like this may be the cause of "Concord's" trouble.

A short time ago I had trouble with stains in the bottom of the kier. I tried almost every method to stop them; had the false bottom pulled up, all the refuse cleaned out, covered the grating with two layers of burlap, changed the soap and size, and finally found out that the firm supplying us with soda had sent the fine grade instead of the coarse, as usual, and the bleacher had been using the same quantity. I had him reduce the amount and the stains disappeared.

In some kiers the supply pipe for the kiers runs down on the inside. If such a case it should always be covered over with a wooden case, for if the goods come in contact with the live steam pipe, although they may be covered with liquor, stains will follow, and if left for a short time without water the stains will be stronger and nothing will remove them.

Dirty water will also give lots of trouble. When the kier is being cooled off do not leave the hose in one place too long; take the same care when watering the goods in the baths. If there is any wood black with age that the goods come in contact with have it removed and something more serviceable put in its place, such as slate, concrete, tiles, etc., anything that will not affect the goods if they are left to lie on it for several days.

Delco.

Commission Combing of Worsted.

Editor Textile World Record:

I would like to know what prices are charged by commission combers for combing worsted.

Gillbox (949).

We find that one of the leading Boston firms in this line charge 7 1/2 cents per pound of top for fine wool, that is 1/2 blood and above. The price is lower for the coarser wools, being 5 cents per pound of top for low 1/4 blood.

Sizes of Twister Rings.

Editor Textile World Record:

Do you consider 2 1/4 inch rings too large for twisting 2, 3 and 4 ply reverse twist cotton yarn 30 to 40? Some advise 2 1/2 inch rings.

Gordon (950).

The 3-ply work is all right on 2 1/4-inch rings, but the 2-ply would be twisted better on rings from 1/8 to 1/4 inch smaller. On the other hand the 4-ply work could be run to advantage on a 2 1/2-inch ring. The amount of twist would have to be considered, also the diameter of the empty bobbin. If a 1-inch bobbin is used for the 3-ply, a 1 1/8-inch bobbin could be used for the 2-ply, and a 7/8-inch bobbin for the 4-ply, making the difference in the bobbin instead of the ring. In this way the work on the finer counts is improved by bringing the diameter nearer to that of the ring, and by easing the strain, it would be possible to run a slightly heavier traveler; in addition to giving a somewhat finer bobbin, the traveler would wear longer.

On the 4-ply, a smaller bobbin would not materially change the tension. With such coarse yarn there is every probability that on a 2 1/4-inch ring a heavy traveler will be used to keep the bobbin hard and the yarn at the proper tension. In this case it would be better to use a smaller bobbin as indicated, and thus save time and obtain more production, by putting more yarn into the bobbin, and reducing the number of doffings necessary for the same number of pounds produced.

Bolster.

In regard to the advisability of running 30s to 40s 2-, 3- and 4-ply on 2 1/4 and 2 1/2 rings, experience has proved to me that it is practicable to run 30s and even 40s on both 2 1/4-inch and 2 1/2-inch rings, but I would not advocate doing this on a wet twister. I consider 1 3/4-inch rings the limit on a wet twister on account of the extra tension on the yarn caused by the vertical rings.

Portsmouth.

The 2 1/4-inch ring gives better results than does the 2 1/2-inch. There are many disputed points in connection with this subject and it is difficult to find two men who are of the same opinion regarding the size of rings. When the ring is too large there is an excessive strain on the yarn from the barrel of the bobbin, thus making it necessary to use a light traveler. When the bobbin is full this traveler is so light that the yarn balloons, breaking down the joining ends. With a smaller ring the difference between the empty and the full bobbin is not so great, consequently the work runs better.

With a smaller ring less floor space is required, and consequently the operator is not compelled to walk so far in attending to the frame.

The work on the 2 1/2-inch ring requires more attention. There is more bad work and an increased amount of waste. The yarn on twister bobbins are liable to run over or under and it is only by the greatest effort that this difficulty is prevented. In our mill we had a great deal of twisting done on the spinning frames and found that the labor cost was much less than on the twister. We ran the 2/13s and 4/36s with a 2 1/4-inch ring on the spinning frames. To fit a spinning frame for twisting we replace the spinning rolls with a plain front steel roll. The bands are then turned to give the reverse twist. The front roll is driven in the opposite direction. The changes are made by throwing the swing stand on the opposite side. The cap bars are raised a little higher. This holds the iron rolls in the proper position. The ends are passed under the roll and pieced up, then the iron rolls are placed under the thread and on the front roll giving the thread a long contact on the roll. There is very little waste made and the same bobbins are used as for spinning yarns.

For twisting coarse yarn, say 2s, 3s and 4s, the spinning frame is not quite heavy enough. Clayton.

Calculating Set of Cloth in Loom.

Editor Textile World Record:

I would like you to state the method of calculating the reed or loom set of a warp. I find the practice varies considerably, and that the results obtained by the different calculations also vary widely. Alpha (946).

The simplest method is that employed in woolen and worsted mills, which consists in first determining the number of ends in the warp and the required width in the loom. From these the set or threads per inch is readily calculated. The number of dents per inch in the reed depends on the number of threads in a dent.

Ex. A warp with 3,000 ends is to be set 75 inches wide in the loom. Find the reed required with 4 threads in a dent.

3,000 (ends) ÷ 75 (inches) = 40 threads per inch.

40 (threads per inch) ÷ 4 (threads per dent) = 10 dents per inch.

This is the only practicable method of calculation for woolens and worsteds, the loom width of which varies so widely and is so much greater than the finished width. It is equally well suited for cotton or other cloths and is used for them.

Owing, however, to the slight difference between the loom and finished widths of cotton goods, a different method is sometimes used in cotton mills. It consists in calculating the loom set by deducting 1 and a certain percentage from the finished set.

Ex. Find reed for a cotton cloth having 64 threads per inch finished and 2 threads in a dent in the loom.

64 — 1 = 63.
63 × .95 (100% — 5%) = 59.85.
59.85 ÷ 2 = 29.92.

A 30 reed would come the nearest to the calculated result.

By the first mentioned method the number of ends and loom width are first determined. Assuming a finished width of 40 inches the number of ends would be (64 × 40) 2,560.

The manufacturer then decides how wide the cloth should be in the loom to bring it 40 inches wide after the contraction in the finishing process. Suppose this contraction amounts to 2 1/2 inches, then the required loom width is 42 1/2 inches.

2,560 (ends ÷ 42 1/2 (inches) = 60.2 threads per inch.

It is usually necessary, as in this case, to discard a calculated fraction. With 60 as the loom set the reed would be (60 ÷ 2) 30 dents per inch. This would make the actual width in the loom (2,560 ÷ 60) 42 2/3 inches, the difference between this and 42 1/2 inches being negligible.

During the year 1906 more than 31,000 commercial travelers secured license to solicit trade in Switzerland, and of this number just one was registered from the United States.

Temperature in Cyclone Driers.

Editor Textile World Record:

What should the temperature be in Cyclone driers to get the best results on fine cotton hosiery? Drier (960).

It is impossible to lay down any general rule for regulating the temperature of a drier to get the best results. The finisher must use his judgment and adjust the temperature to the production required. "Drier" is evidently having some trouble with his goods, possibly from overheating, which is the chief cause of difficulty in the finishing room. The best results are obtained with just enough heat to dry the goods, which should be put into the machine in a slightly damp condition in order to prevent wrinkles. The temperature should not go over 120° F., otherwise the color and fabric will be injured, although some colors will stand a higher temperature than others. An excessive heat will make the stockings feel harsh, which is a most serious difficulty and for which the drier is often unfairly blamed. The goods should be washed well before going to the boarders.

Henry Nevis.

The temperature at which hosiery is dried varies widely in different mills. Some manufacturers dry at as high a temperature as possible. This is a great mistake, as it injures the goods. One of the reasons why imported hosiery usually has a better finish than domestic hosiery, is that the foreign manufacturers dry the goods at a low temperature and take plenty of time, not only for drying, but for all other processes of finishing.

I am acquainted with a number of European manufacturers of hosiery who dry their worsted and merino goods at a temperature of 120° to 130° F., and their oxidized black lisle hose at 130° to 150° F. The goods are afterwards chromed. The fancies are dried at 120° to 130° F. I have tested this method by drying a lot of goods at the low temperature named above and another lot at 190° to 200° F., which is the standard in our mill. Both lots were pressed together and I found that the goods dried at 120° had a much better color and finish than those dried at 190°.

The low temperature caused a decrease in production, but this can be overcome by using three sets of hosiery boards in place of two sets. Finishers often make a mistake and dry at too high a temperature. The excuse they make is that the superintendent or owner will not buy extra boards and that the production must be taken care of. In some mills inexperienced men are employed to take charge of the drying. The result is poor work, because of high temperature and other causes. I believe that a great improvement can be made in American hosiery by drying at a lower temperature, say 10° above the temperature used for after chroming. By so doing the goods will retain their luster and will have a much better finish. Ravenswood.

Emery Filleting.

Editor Textile World Record:

I would like to have some information about covering card grinder cylinders with filleting. My grinder is an iron roll and I find it almost impossible to get it true when covering it with emery. Is the filleting true and will it last as long as when covered in the old way? What emery is best for Nos. 33, 34 and 35 wire? Burwick (958).

Filleting is very uniform and makes a good surface. It will last as long or longer than any other surface that can be covered with emery. In covering a cylinder with filleting it is necessary to remove all grease from the roll. It is well to heat the cylinder slightly. Wind the filleting on the roll to get the right length, then wind it back to the drum in the same way as when covering a worker. The glue should be warm and thin and poured in a shallow dish. Dip the hand flat in the glue and then rub the glue on the cylinder by hand, instead of using a brush. Wind the filleting on the cylinder by the ordinary method used for clothing workers, being careful not to let any emery drop on the glue.

The emery should not be too coarse or too fine. Cotton carders use a finer emery than is used by woolen carders, claiming that it gives a smoother point. I have always had good results by using a medium size of emery, say 10 or 12, on 33, 34 and 35 wire. Sam Driver.

KNITTING DEPARTMENT.

For Knitting Mill Machinery, Equipment and Supplies, see pages 235 to 253. Also Buyers' Index.

THE KNIT GOODS SITUATION.

Fall lines of knit underwear for 1908 have now been open about a month and while a great many buyers have been in the market and manufacturers and their agents have practically covered all their territory at least once, there yet remains a large proportion of their production to be sold. A number of buyers whom the writer has talked with state they have so far bought from 40 to 50 per cent. of their early purchases of last year. Although they are not looking forward to a proportionate decrease in the season's business, they do not show any inclination to place further orders at the present time, apparently not having the proper confidence in values. They want to be in a position to take advantage of lower prices which they expect.

The prices ruling are very close to those obtained last year with the exception of ladies' 50 cent combed ribbed goods which are from 12 1/2 to 25 cents per dozen higher.

Manufacturers are having considerable difficulty in getting buyers to agree to anticipate their accounts this year and as a consequence of this, some manufacturers who have heretofore sold their production direct from the mills, have been obliged to place their lines with commission houses.

The New York jobbers have formed an association to combat the "F. O. B. Mill" clause that a number of the manufacturers are insisting upon and there is considerable objection raised by the Western jobbers to the uniform order blank framed up by the Manufacturers' Association. These matters taken together with an indication of a considerably lessened demand, have worked against the placing of orders.

The buying of men's fleeced goods has been affected more or less by L. E. Harrower of Amsterdam, who reduced his price for a few days about the middle of January from $3.75 to $3.62 1/2. Those buyers who were interested in similar grades looked for the same price to be made on competing lines, and of course, lost confidence in the $3.75 price. Although the $3.62 1/2 price was withdrawn after a very few days, its effects lasted for some time afterwards.

The William H. Rowe Knitting Co. and Robert MacKinnon & Co. show the starters in men's fleeced goods lines in 11 1/2 and 12 pound goods at $3.50. The Groat Knitting Co. comes next with a garment weighing 12 1/2 pounds on size 42 at $3.50 for February and March delivery or $3.65 for June and July delivery. The Hover garment is being offered at from $3.47 1/2 to $3.67 1/2 according to the date of delivery. This is a 13 pound shirt and is made in the Jaeger color only.

The High Rock and the Union Mills are both showing three lines of fleeces at $3.75, $3.85 and $4.00, according to the weight and finish. The $3.75 grade is a 20 gauge garment, weighing 12 to 12 1/2 pounds on size 42 and made with Prussian binding. The $4.00 grade is 14 pounds 22 gauge and bound with wide silk galoon.

It is reported that the Hayes Knitting Company of Philmont is showing a very similar garment at $3.85 and that the Troy Knitting Company have also copied same style of shirt at $3.87 1/2. All of these manufacturers ask 50 cents per dozen extra for double breasted shirts made without binding around the shield, or 60 cents per dozen extra when made with the binding.

There is an increase in the number of manufacturers making men's ribbed goods which is probably due to the slight falling off in the demand for fleeces. The Canasawacta Knitting Company are showing a 10 pound tuck ribbed garment at $3.12 1/2, while the Oswego Knitting Company are getting $3.37 1/2 for the same weight, but better trimmed. The Roff Knitting Company have sent out a circular letter, calling atten-

tion to their 12 pound tuck ribbed shirt at $3.37 1/2 and no doubt will sell freely to those who want plenty of weight at a low price. The Hanes line at $3.50 for 11 pound with double seated drawer, shown by E. H. Clift & Company is a very popular garment with the New York jobbers. The Utica Knitting Company have two men's ribbed shirts in their line, one weighing 11 pounds at $3.62 1/2 and the other weighing 12 pounds at $3.75.

The Gilbert Knitting Company also have a very attractive looking grey ribbed garment made in fine stitch, weighing 11 1/2 pounds at $3.65. The Harder, Novelty, Oneita and Fuld & Hatch lines, weighing 12 pounds are all being held firmly at $3.75. It was reported last month that the Fuld & Hatch line had been broken to $3.65, but it was ascertained that this was only for a stock lot of goods that had been made on last season's orders and should not be taken to indicate a weakening of the market.

The Cooper line of men's cotton and worsted ribbed goods opened at last year's prices; $7.50 net was asked for the 12 1/2 pound combed cotton garment and the worsted lines at $9.50, $11.00 and $12.00, all the principal lines on which business is being done.

HOSIERY.

The business so far placed on fall hosiery is by no means satisfactory to the manufacturers and their agents. Buyers have been in the market for quite a long time and several of them have gone home. Upon comparison of notes by salesmen it is found that little has been done aside from shopping. It is not that there has been any great friction in regard to prices, but there is apparently a lack of confidence and sort of an "I guess I'll wait awhile" feeling. Some buyers have gone so far as to call attention to the decline of about 20 per cent. in piece goods and ask when it is due at the hosiery end. These buyers seem to forget that while piece goods advanced from 35 to 45 per cent., hosiery advanced only from 10 to 15 per cent., consequently, proportionate reductions are not to be thought of.

Some lines of children's ribbed goods have been reduced 2 1/2 cents per dozen during the past two weeks in an effort to secure business, but these prices are still 2 1/2 cents per dozen higher than the opening prices of last year. Children's ribbed goods, weighing 1 lb. 12 oz. that opened last year at 65 cents are now held at 67 1/2, and 2 lb. 10 oz. goods made with the double knee which opened last year at 75 cents are now held at 80 cents.

The ladies' fleeced goods placed last year at $1.00 to $1.02 1/2 are 2 1/2 cents to 5 cents a dozen higher now and from what we can learn, buyers are not taking the same goods at the advanced prices, but are placing orders on lines weighing a quarter pound less at 97 1/2 cents to $1.00 in order to meet the retailers' ideas of proper prices.

Wool and worsted lines are being distributed slowly but surely and at the same prices as last year.

The line of fleeced goods made by the Ipswich people is 2 1/2 cents to 5 cents per dozen higher than last year's opening prices, the 5 cents being asked on the heavier weights.

Little change is noticed in the showing of novelties in spring hosiery from that made two months ago. As spring grows nearer, it becomes more apparent that white goods will not occupy the center of the stage as prominently, as during 1907. Colors are receiving more attention and it is said that blues will have the call. Among the more recent novelties might be mentioned some new boot patterns which give the appearance of high tan shoes with top made of blue or a lighter shade of tan than in the boot part.

Numbering Rubber Thread.

Editor Textile World Record:

How is rubber thread numbered? Beta (945).

This question was fully answered in our issue of September, 1906. The number of square rubber thread indicates the number of threads that will lie side by side in one inch. This is the single standard for the whole world, there being, as far as we can determine, no other standard used to any extent.

MY EXPERIENCES IN KNITTING MILLS.

BY F. W. HERINGTON.

[The first instalment of these reminiscences were published some time ago and in view of the general interest which they excited, the author has consented to continue them in this issue.—ED.]

In the early part of 1880, the Universal machine having been perfected and completed, I returned to Toronto with John Blacklock, and exhibited for a few months the practical working of the Universal knitting machine, making men's half hose complete with welt, rib top, plain leg, heel, plain foot and toe, or with a ribbed leg and foot, as desired, and without transferring a single stitch from one needle to another, it being all done by transferring the needles with the stitches on them, as already stated, from the dial to the cylinder and vice versa.

This exhibition of the machine was for the purpose of forming a stock company for the sale of the patents and the manufacture of the machines. This was done and the patents for England, Germany, United States, and all of Canada, except in what are known as the maritime provinces, Nova Scotia, New Brunswick and Prince Edwards Island, were sold for $30,000 to the company, which was called the Universal Knitting Machine Company. This company is still running a large hosiery mill in Toronto, and manufacture a large quantity of cotton, merino, and cashmere hosiery.

During the time I was exhibiting the Universal machine in Toronto, the machinery from the mill at Hastings was being removed to Colborne, Ont., so as to be nearer railroad facilities.

The mill at Hastings, Ont., was run entirely by water power from the River Trent, an outlet of Rice Lake. This is a magnificent water power which is running almost entirely to waste, as there are no manufacturing industries there now, and the population of the village has rather decreased than increased during the past 25 years.

An old fashioned wooden turbine water wheel was used, and I remember one occasion when a large quantity of eels came down the river; they got fast in the water wheel, stopped it, and had to be chopped out with axes before the wheel could be run again.

I recall two incidents in the mill at Colborne. A new building had been erected close to a pond which was to supply the water power. This pond was not over a half mile in circumference, and was supplied from a spring, and other small springs running into a creek about two miles from the pond. The dam on one side of the pond was about 25 feet high. The mill was built on this low ground, so that by building a flume up to the level of the pond, we had a fall of about 23 feet, and by using a small iron turbine wheel about 2 feet in diameter, we had sufficient power to drive all the machinery in the mill.

The flume, A, was built in the shape of an L with the wheel, B, setting on the bottom of the L and the spout, C, leading from the pond to the top part of the flume, A (see Fig. 1).

Mr. John Blacklock being away the greater part of the time in Toronto, I was in full charge of the mill. I attended to all the fixing of the knitting machines and sewing machines, and superintended the finishing room, and was therefore boss knitter and boss finisher, exercising a general superintendence over the other departments. There was, however, a boss carder who looked after the picking, carding and spinning, as the cards and jacks were run night and day. In addition to this I did all the work of parceling and packing the goods, besides all the office work, keeping the books, correspondence, pay roll, etc. As the production was only 10 dozen a day and the number of employees about 20, I was able to do it all.

The mill at Colborne was situated three miles from the village out in the country, surrounded only by farmhouses. It was a mile and a half from any store, and three miles from the postoffice, so that someone had to drive daily to the village and back to mail and receive letters.

On my return to the new mill at Colborne, I saw that the coils of steam pipes which had been put in by the millwright during our absence in Toronto, had been placed so that none of the pipes would drip automatically. I foresaw that if, at any time in the winter

when the thermometer is around or below zero, the steam was allowed to go down, the pipes would soon fill up with water, freeze and burst. To prevent this it was necessary when winter came on to hire a watchman to keep up sufficient steam to keep the pipes free of water.

This arrangement worked all right for some time, until early in February, when the thermometer had been 10 to 15 degrees below zero for two or three nights, the watchman went one night into the dry room, which was of course the warmest place in the mill and sat down. He must have fallen asleep in the warm place; at any rate, when he woke up about four o'clock in the morning, nearly every steam pipe in the mill had filled up with water, frozen and burst. The steam in the boiler (hard wood was used as fuel), had gone down while he slept; the condensed water, which could not run out, soon filled the pipes, froze in them and burst them all.

This closed the mill for several days until new pipes and fittings could be obtained, but I saw to it that they were put in so they all drained into one pipe and one valve. After that we ran no more risk with a watchman, as all I had to do was to see that this one valve was left open, when the water would all drip from the pipes, and then there was no danger of freezing. The fireman started the fires at four o'clock to get the mill warm in time for starting at seven o'clock.

The wages paid to the help in those days were not high, and would be considered starvation wages today, and yet I think they all saved as much, if not more, than they do now when they receive three times as much. Seaming and finishing girls got from $2.50 to $3.00 per week; the latter was the highest paid any girl. Wages were paid monthly, so they seemed larger than when paid every week. The boss carder received $1.75 a day, spinners $1.25 to $1.50 a day, and card room boys not over $2.00 a week; the fireman and scourer had $1.00 a day. The men, however, got their board for $2.50 a week, and girls who did not live at home could get board for $1.50 a week.

Living was, of course, a good deal cheaper then than now. I remember we had a nice house, and the rent was only $3.00 a month. Potatoes were only 25 cents a bushel and other vegetables just as cheap. Butter only 11 to 14 cents a pound and meat from 4 to 6 cents a pound. This accounts for being able to board the men for $2.50 a week.

The other incident, if I remember correctly, happened the following winter, also in the month of February. The thermometer had been down as low as 20 and 22 degrees below zero for two days. Of course the top of the pond was frozen over and the ice was several inches thick, but there was sufficient water underneath the ice to supply our power.

I have said the water wheel was in the bottom of the flume, A, Fig. 1, this flume being fed from the pond by a large wooden pipe or spout, C, to the flume, A, at the top. It being a turbine water wheel, which discharged through the centre Fig. 1, D, it will be readily understood that when the gate of the water wheel was closed, no water passed through flume, A.

The gate of the water wheel was raised and lowered by means of two bevel gears, E and F, on the wheel itself, one of which was connected to a shaft, G, coming up through the top part of the flume. The other end of the shaft also had two bevel gears, H and I, with a short shaft, J, at right angles to the other, which entered the wall of the mill, K. A wheel, M, attached to this short shaft, J, enabled the gate of the wheel to be lowered and raised from the inside of the mill, on the first floor, in the carding room. It was necessary to start the wheel slowly early in the morning in order to run the pump for pumping water into the boiler.

On this morning the fireman had started the wheel slowly as usual, but at seven o'clock when the boss carder endeavored to raise the gate higher, so as to run the wheel faster, he found he could not do so. The shaft, G, would turn, but the gate would not rise.

We suspected that the top bevel gear, F, on top of the wheel, B, in the bottom of the flume, A, and therefore under water, had become loose on the upright shaft, G, and the shaft, G, turned without turning the gears, F and E, with it.

The question arose what was to be done. The mill could not run unless the wheel ran

at full speed. The gate of the wheel could not be raised, and in working it back and forth the gate became closed almost tight.

The boiler could not be run without some power to operate the pump, and if the boiler could not run, then the mill would soon get too cold for any one to work in it.

The first thing done was to have the gate at the pond in front of the spout, C, put in, so to shut off the water from entering the flume, A, and then by emptying the flume of the water, take off the top of the flume and get to the water wheel and fasten the gear, F, to the shaft again.

As the pond was frozen over the ice had first to be cut away before the gate could be put down. This was done, but it was found that the water was still entering the flume, A, as fast as it was going out through the small opening in the wheel. It was thought then that the water must leak through the sides of the gate of the pond, and in order to stop this leak, more ice was cut away and bagging and manure put down on each side, but with no result; the water still continued to flow into the flume. The question was still what was to be done.

Mr. Blacklock had left home the night before to be gone several days and I, a young man of only 21 years, was left with this whole responsibility of running the mill. I saw no way out of it except to lower the water in the pond, until it was below the spout, C, that entered the flume.

Two old millwrights who were there said that would not do, for, if the pond was nearly emptied of water, frost would get into the dam and destroy it. However, I did not see that we could wait until the ice melted before we let the water out of the pond. It was then February, and we certainly could not sit down and wait till it was April for the ice to break up, so I concluded to take the risk of frost injuring the dam and ordered the boards taken off the waste weir and the water let out of the pond. This took about three hours, and after this was done there was still water in the flume to get rid of before we could get to the wheel itself.

The only outlet for the water in the flume was through the wheel, B at D, and as the gate of this was almost closed the water did not get through very fast. I then decided that in order to empty the flume faster we should have to get down as near as we could to the bottom of the flume, A, and cut a hole about 8 inches square through the 2-inch planks of which it was made.

This was done by boring two-inch holes with an augur, close together and only boring very nearly through, for if the holes had been bored right through, the water rushing out would have prevented us boring others, so holes all around the piece were bored in the same manner. It then became necessary to devise some means for breaking in the piece thus bored around.

It must be borne in mind that the inside pressure of the water was against it, and also that as soon as the hole was broken in, a stream of water would gush forth and be thrown some distance, so in order to keep a safe distance from it, a long pole about 20 feet long was procured, and with this as a battering ram in the hands of six men we succeeded in breaking the piece out. We all stepped back as quickly as we could but the stream of water covered us all, and as the thermometer was 22 degrees below zero, this water as soon as it touched us became icicles all over our clothes, and we presented a picturesque appearance.

However the flume was soon emptied and then we proceeded to take off the top of the flume A, and get to the wheel B. When this had been done we found that although the bevel gear F, had been fastened to the shaft G, not only with a set screw, but also with a pin right through both gear and shaft, this pin had been completely cut off inside. We put in a new pin and new set screw and replaced the top of the flume and covered the hole, and had to wait two days for the water in the flume to rise again so as to be above the spout C.

This incident was impressed on my memory, owing to the many difficulties attending it, as well as the effect of the water freezing so quickly on us, and because it was the coldest weather I ever experienced in Canada, though we know that in the northwest of Canada the thermometer goes as low as 40 and 50 degrees below zero. No damage occurred to the dam, as the old experienced mill-

wrights said there would be. In the summer, when we stopped a few days to make repairs to the spout of the flume, we found that the first joint of the spout from the inside of the pond had come apart. This accounted for the fact that the water continued to flow into the flume, after we had put down the gate in front of the spout, and this, therefore, was the cause of my having to run the risk of partly emptying the pond of water in the depth of winter, against the advice and experience of the old millwrights. Fig. 2 is a top view plan of Fig. 1.

I remained at Colborne until about January, 1882, when I left the employ of John Blacklock, after having been with him for ten years. I entered his mill as an office boy at $2 per week, and was advanced from time to time until for about two years prior to my leaving I was receiving $2 per day.

All the patents on my knitting machines except those for the Maritime Provinces were sold to the Universal Knitting Machine Co. These were still unsold, and so shortly after leaving John Blacklock, I re-engaged with him and P. G. Close, who was financially interested in the Universal machine, at $3 per day and expenses to go to St. John, N. B., with the Universal machine to exhibit it there for the purpose of selling the patent rights for the Maritime Provinces. I did so, and soon after the patent rights were sold for $5,000.

During the time I was exhibiting the machine in St. John, Wm. H. Fairall, who was in the dry goods business, became interested in stocking manufacturing, and proposed that I remain in St. John, and start a stocking factory which should include underwear also, so I closed an engagement with him.

At this time vertical stripe knit goods for men's underwear were being made by Swits Conde. They were quite popular in the United States and it was proposed to re-produce them in Canada. Another company had just been formed in St. John for the manufacture of this style of men's underwear, and the machinery had arrived, but was not then set up.

These machines were made to produce vertical stripes by means of a blocked or plugged sinker burr, but I adopted the method of using a long and short bearded needle for producing the vertical stripes. (See my article in Textile World Record, page 134, November, 1903, which fully illustrates and describes this kind of knitting). We procured a knitting table from Tompkins Bros. for this work, and commenced the manufacture of men's underwear in these vertical stripes.

In addition to this we had ten Franz & Pope machines, latch needle, made in Georgetown, Ont., for plain work only. On these were made ladies' seamless stockings, the hem being made by putting the first course of loops on to the needles after sufficient length of cloth was knit to make the required width of hem. This made a perfect finished hem, the same as is now made on full fashioned machines, only the transferring of the stitches on the latter is done more quickly now.

These latch needle machines were all operated by hand and a complete stocking was made on them, except the closing of the toe, which was done by hand also, and formed a perfect closing, the same form of stitch being made by hand. Now the toes are closed by looping, which of course makes a slight seam across where the toe is closed and is readily seen, whereas by the hand method when properly done this closing could not be seen. A ready sale was found for the stockings, and at a good margin of profit. I remained with W. H. Fairall only about ten months, as I was desirous of going to the United States in order to get further experience in knitting.

About August, 1883, I left St. John, and went first to Tompkins Bros.' machine shop in Troy, N. Y. I found on my arrival there, that they had an order from Philadelphia for a knitting table to knit plush work, and as they had not as yet turned out a machine for this kind of work, they wanted a knitter who could set it up in their shop, so as to have all the extra parts and stands for the additional wheels and burrs in proper shape and right.

At that time I had no experience whatever in plush knitting. Wm. Ostrander, who was the boss knitter for Wm. Tompkins, a knit goods manufacturer above Tompkins Bros.' machine shop, had had some experience in this kind of knitting, but as he was fully occu-

pied with his own work, he had very little time to spare to assist Tompkins Bros. with this table, so they asked me to stay and set it up for them before the machine was sent out.

Mr. Ostrander very kindly offered to give me the benefit of his experience, and with his valuable aid, I succeeded in setting the machine up and running it satisfactorily, and thus obtained my first experience in plush or stockinette knitting as it is sometimes called.

At that time only two feeds were put on a 30 inch cylinder, which was run about 22 revolutions per minute, but such has been the rapid march of improvements in knitting and knitting machines, that in 1894 I put four feeds for plush knitting on a 15-inch cylinder, and ran them successfully at a speed of 75 revolutions. The production, therefore, was doubled by using four feeds instead of two, and further increased by the greater proportion of speed between a cylinder 15 inches in diameter and one 30 inches.

Through the influence of Tompkins Bros., I entered into an engagement for three years with Peter S. Kinsey, who proposed to start the manufacture of jersey cloth at Paterson, N. J. Mr. Kinsey had purchased four knitting tables from Tompkins Bros., but as this was new work also, I remained a further time at their shop, setting up one of the tables so as to have everything right before the machines were shipped to Paterson, N. J. These machines were 27 gauge and 30 inch cylinders. The manufacturing of jersey cloth, stockinette or plush and boucle cloth, was then just commencing. I moved to Paterson, N. J., the latter part of August, 1883, and commenced setting up the machinery for Peter S. Kinsey, for the manufacture of the knitted cloths, as already stated.

Jersey cloth is only plain knitting, and the face of plush cloth is also plain knitting.

Jersey cloths in some qualities were made from all worsted yarns, which were imported from France and Germany at that time, as the worsted yarn manufacturers in the United States then made only coarse worsted yarns.

This knitting also included the manufacturing of astrakhan cloth. (See my article with illustrations of astrakhans in the Textile World Record, page 138, August, 1903.) Thus began a new experience in knitting, which included besides the above named fabrics, fancy designs and pattern work, using tuck pressers, backing wheels, and stitch burrs. Some of these fancy designs have already been published in the Textile World Record (see page 127, April, 1903), and others which were made while I was at Paterson will be published from time to time as space will permit.

Nothing of special interest occurred at the mill in Paterson. We had no labor troubles then and things in general ran considerably smoother than at the present time. I remember in 1884, when there was talk of the passage of the Mills bill, it was expected that if it passed, it would ruin the Jersey cloth business. As it did not pass, it was all right, but during the time it was up, the mill was run slack for about four months, on account of the uncertainty regarding its passage.

In those days manufacturers had to worry over the possibility of free trade bills coming up and being passed, but all that has gone by and now their greatest problem is the labor question, and more recently the high price of cotton.

For the past few years, labor having been fully employed, the help in general have become very independent and it is almost impossible to get that degree of efficiency and good work from them that could otherwise be obtained. Neither can as strict discipline be maintained on this account.

For example, if a hand does not turn out good work and the foreman goes to him, and says that so-and-so must be done better, he tells the foreman that if the work is not satisfactory, he can get some one else in his place, knowing at the same time that if he is discharged his place cannot be easily filled, and that he would be immediately hired by another mill.

On the other hand, if this was not the condition of things, the operator would say he would try to do the work better, and because of his desire to retain his position, would at least make an effort to do better work and in most cases would do so. In the former instance, there is no disposition or effort put forth to do better, and thus the best work and

efficiency of a hand are lost.

The jersey cloth business at Paterson, N. J. lasted for about six years, and was successful and profitable.

We did only the knitting and winding. The equipment consisted of two winders, and six knitting tables of Tompkins Bros.' make, all with 30-inch cylinders. The cloth when knit was from 66 to 70 inches wide, but after being dyed and finished measured only from 52 to 54 inches.

After it was knit and mended, it was sent to Philadelphia to be dyed and finished, when it was shipped by them direct to New York to be sold.

It was finished and put up the same as cloths and tweeds are, that is, 26 and 27 inches, double width on the fold, making it 52 and 54 inches when opened out, and in this shape was sold to the manufacturers of jersey cloth waists, which was a manufacturing business of itself.

At the end of the six years the market for jersey cloth slumped and I remember that the boucle cloth that was sold for 75 and 85 cents a yard during the time there was a demand for it, after the slump sold for 25 cents a yard.

During this time plush or stockinette cloth was also made on these machines, the cloth being knit and mended and sent away to be dyed and finished, and then sold to manufacturers of garments and made up into what were called "stockinette jackets." The boucle cloth was finished and sold in the same manner, and made not only into jackets, but was used for dress skirts, and also for trimming of fall hats.

At this time the manufacture of jersey cloth, stockinette and boucle cloth came to an end and other kinds of goods had to be made.

(To be continued.)

There is but one cotton seed oil mill in all India and that is in Burma. This mill has a production of 30 tons of seed daily and runs 22 hours a day. Ordinary workmen receive from 8 to 16 cents a day, mechanics 32 to 48 cents. The expense of working the 30 tons of seed is about $2 a day.

A PATTERN MECHANISM FOR KNITTING MACHINES.

This mechanism, recently patented, is designed to vary the combination of thread carriers of a knitting machine. The inventor claims an unlimited variety of combinations and describes the process as follows:

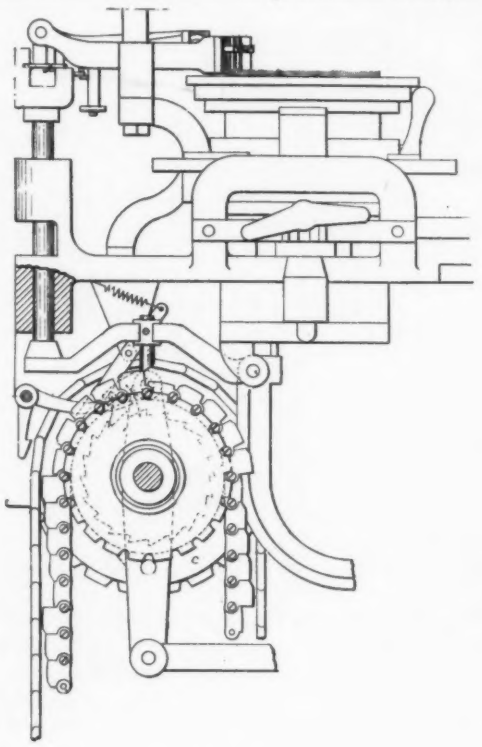


FIG. 1.

Fig. 1 is a side view of a machine equipped with the device; Fig. 2 is a front view; Fig. 3, an illustration of the pattern device. The levers of the thread carriers are operated upon by cams. These cams operate upon rollers on the end of the levers at different heights, two rollers being shown. The cams are elevated to different heights to co-act with the different rollers and their corresponding levers and thread carriers.

The cams are secured to a block, supported upon a rol, which is capable of vertical movement in guides. The lower end of this rod rests upon the end of a lever pivoted to the frame of the machine.

There are a plurality of blocks having inclined upper cam faces and these are of different heights. Each block, at one portion of its end, has a socket and at another portion an orificed projection corresponding to the socket. They are associated together by a bolt passing through corresponding orificed portions of adjacent projections. These bolts have at one end an enlarged head and a threaded opposite end on which works a threaded holding nut corresponding to head. Both the end of head and holding nut have the inset or cut, one for a holding, the other for a turning device. By this arrangement a pattern device can be formed provided with projecting blocks and arranged in any desired relation, number and order with each other. The head and nut of the bolt enter between the sprocket teeth on opposite sides of the wheel. The blocks projecting below the bolts rest upon the wheel between the sets of sprocket teeth before the bolts bottom in the sprocket teeth. By this construction, the blocks have a positive and fixed seat on the wheel, while the bolts, as it were, float between the sprocket teeth.

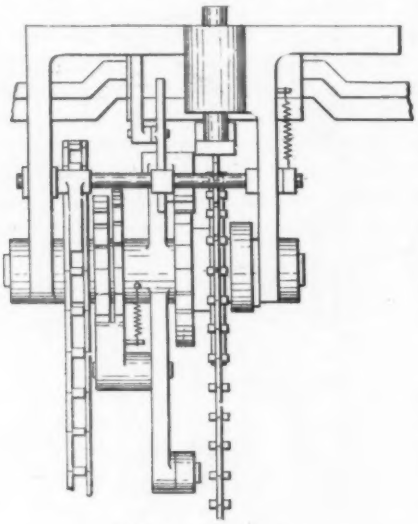


FIG. 2.

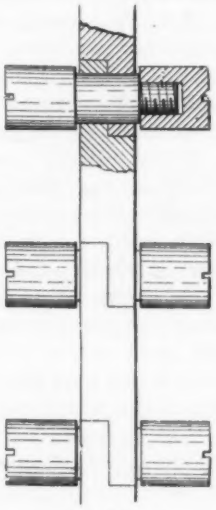


FIG. 3.

PATTERN MECHANISM FOR KNITTING MACHINES.

The exports of wool from Australasia for the nine months ended March 31, 1907, amounted to 215,000 bales.

AN IMPROVED KNITTING MACHINE.

A machine for knitting garments that are to be separated, leaving a selvage edge on each side, has recently been patented in this country. Fig. 1 is an inclined elevation of the machine; Fig. 2 is a cross section on the line, 8 8, of Fig. 1; Fig. 3 is a bottom plan of one of the cam carriages; Fig. 4 is a sectional view of the cam-carriage. The inventor describes the operation as follows:

While the cam-engaging finger rides upon either of the cam-blocks, the retracting-cams are shifted to the dotted-line position of Fig. 3, and the stop is thrown into the path of the pin to prevent the retraction of the cam. A fabric is now formed composed of closely knitted stitches, and which may be the cuff portion of a garment. The stitch may be of any form, in which all the needles in action cast off a single loop of yarn at each stroke of the cam-carriage, the particular variety of stitch being knitted depending on the configuration of the pattern-cylinders. Since the operation of the parts of the machine to which the present invention relates is entirely independent of the proportion of needles knitting at any time in the formation of the fabric, the details of these cylinders have not been shown. When

the cam-block passes out from under the finger, the spring swings the lever so as to shift the gear rack. This changes the setting of the parts of the cam-carriages to that shown in full lines.

The lock-stitch produced by this racking movement forms a more closely knitted fabric than the half-cardigan stitch produced without the racking and is a suitable gradation between this and the taut stitches of

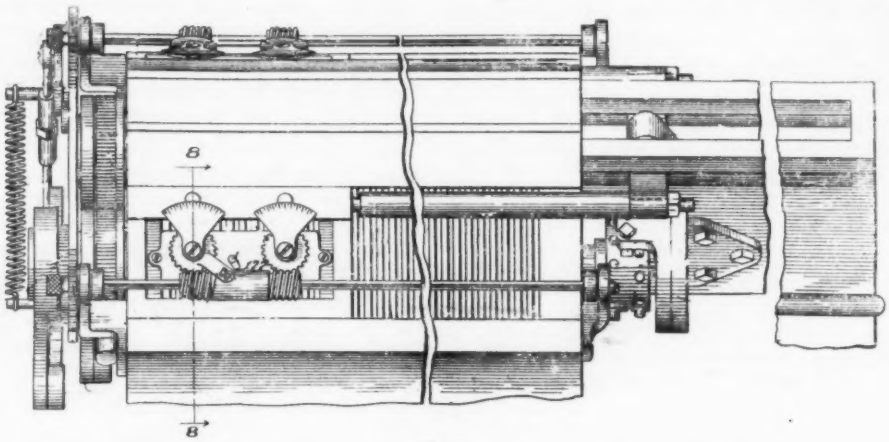


FIG. 1.

The cams now operate upon the needles and are acted on by them in such a way as to produce the half-cardigan stitch and a more open fabric. During the formation of this part of the garment, and preferably immediately after the change is made to this form of stitch, the stop-arm is engaged by

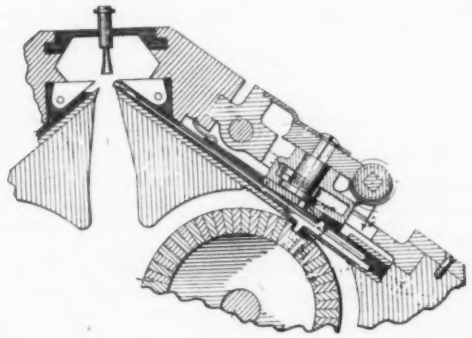


FIG. 2.

one of the elevations of the pattern-ring and swung out of the path of the pins. This causes the racking movement to begin, and it continues during the formation of several rows of knitting or until the elevated portion passes out from under the point of the stop-arm, and this arm is again swung into the path of the pins by the action of the spring.

the cuff portion of the garment. After the elevation passes out of engagement with the stop-arm, and until this is reached by one of the elevations of the pattern-ring a loosely knitted fabric composed of half-cardigan stitches is produced. Several other rows of interlocked stitches are formed when the stop-arm is swung out of the path of the pins by the elevated portion of the pattern-ring. After this elevated portion passes beyond the point of the stop-arm the lever is swung by the cam-block to change the setting of the parts of the cam-carriages for forming again the more closely knitted stitch.

The fabric produced by the machine comprises a number of closely knitted portions and intervening portions of more open knitting joined to the closely knitted portions at either end by connecting-webs of interlocked stitches. The fabric may be divided as desired by cutting through any such webs, which preferably are not less than three courses of stitches in length; if the cut is made through an intermediate course a selvage edge at one side and a series of lock-stitches at the other side of the cut result. It has been found convenient to separate the fabric by cutting through all of those connecting-webs of interlocked

stitches which follow the open knitting. In this way the fabric is divided into a plurality of garments, such as sweater-sleeves, each having a closely knitted elastic cuff and a loosely knitted open body, the first several rows of stitches of the body being so interlocked as to be intermediate in mesh between those of the cuff and of the remainder of the body and forming a fine appearing connection between the two. Each garment has, moreover, a non-raveling edge at both top and bottom.

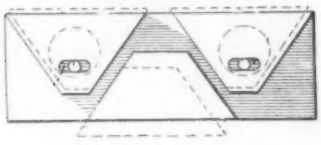


FIG. 3.

FIG. 5.

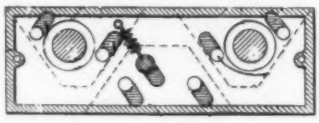


FIG. 4.

The recurrence of the several forms of stitches is determined by the conformation of the pattern-wheel, which may be changed as desired.

Connection is established between the shaft-section and the pattern-cylinder by pins projecting from a flange on the end of the shaft-section into suitable sockets in the end of the trunk of the pattern-cylinder. When the cylinder is longitudinally reciprocated, there is a movement of the cylinder-trunk on the pins; but the reciprocation of the cylinder is not sufficient to cause these parts to be separated.

In the preferred construction of the machine the cam-plate takes the form of a star having three points and is so driven as to swing the pawl-arm and shift the needle-plate between each complete cycle (advance and return stroke) of the cam-carriages. The knitting pattern may be changed by substituting for this cam one of different form which will shift the needle-plate more or less frequently. In Fig. 5 is shown such a cam having six points and which may be employed to shift the needle-plate at the end of each stroke of the carriages. When the needle-plate is so shifted, a fabric of interlocked stitches is produced, the form of the stitches having a peculiar ornamental effect.

KNIT GOODS CONVENTION AND EXHIBITION.

The annual conventions of the National Association of Hosiery Manufacturers and the American Knit Goods Manufacturers' Association will be held in Philadelphia on May 11th to 16th, 1908. The membership of the Hosiery Association is now 225, representing 70 per cent. of the total United States production and growing rapidly. The Knit Goods Association—embracing all lines of knit goods except hosiery—is not so large, being a much younger association, but its membership is representative and very enthusiastic.

The success of the hosiery association's exhibitions has been phenomenal. With the co-operation, influence and support of the Knit Goods Association, Secretary C. B. Carter anticipates a very much larger number of exhibitors, as the attendance and interests represented will be many times larger than at previous exhibitions. He extends a most cordial invitation to make an exhibit, as a means of keeping in close touch with the knit goods manufacturers in all lines or having something of special interest to present to them.

The cost of space will be upon a basis of fifty cents per square foot—no limit to space. Some spaces will be more desirable than others and rather than charge an advanced price it has been decided to lease the space in the order in which contracts are received; in other words, the one who sends in first contract will be permitted to select the most desirable space, and so on.

The exports of cotton manufactures from Manchester to the United States in 1906 were valued at $7,813,969, an increase over 1905 of more than a million dollars.

KNITTING MILL NEWS.

New Mills.

Alabama, Dadeville. Hall Bro. are planning to establish a small plant for carding, spinning and knitting cotton hose. They invite information and prices on machinery.

Colorado, Denver. The Colorado Woolen & Knitting Co. has been incorporated with capital stock of $50,000. P. H. Hansen, A. J. Hauber and F. A. H. Hauber are the incorporators. A plant will be started to manufacture woolen and cotton hosiery. F. A. H. Hauber may be addressed at Lock Box 634, Denver.

*Georgia, Macon. It has not been definitely decided to start the proposed knitting plant for the Atlanta Guarantee Hose Co., 34 1/2 Peachtree St., Atlanta, Ga., in this city. The company is looking for the most desirable place. It is stated that the mill will be a $50,000 plant. In addition to B. F. Ferris, president, F. K. Ricker and L. V. Curry are interested.

*Maine, Waldoboro. The Suffolk Hosiery Mills, which we reported as remodeling the Waldoboro Shoe Factory and installing knitting machinery, has not started operation. It is expected, however, that by Feb. 1, machinery will be installed and in operation, which will give a daily capacity of 220 dozens of men's, women's and children's hosiery. The Suffolk Hosiery Co. has capital stock of $200,000. Henry Suck is president, and Andrew J. Kelly, treasurer.

*Massachusetts, Ipswich. The Brown Stocking Company, reported incorporated with capital stock of $500,000 has elected officers as follows: Daniel Safford, pres., and Harry B. Brown, treas., mgr. and buyer. The construction of the plant is practically completed and 400 knitting machines and 30 sewing machines are being installed. Manufacturing has commenced on some of the machinery and the full equipment will be operated as soon as possible. Men's and ladies' hosiery is the product and is sold through Wm. Iselin & Co. Employment will be given to about 500 hands.

*New York, Amsterdam. The new Tryon Knitting Mills have started manufacturing. As we reported, this company has a capital stock of $20,000 and will be in control of John K. Stewart & Sons, who operate the Chuctanunda Hosiery Mill, Globe Mill and Green Mill of this place.

*New York, Gloversville. The plant which we reported as being started by George H. Holmes at 25 Clinton St. will start manufacturing glove linings in mercerized cotton, silk and worsted about Februarv 15 The equipment will consist of 6 cylinders driven by electric power. 2/80 cotton, 1/40 worsted, and silk yarns will be bought.

*New York, Salem. The new knitting mill which we reported as projected in November will be known as Smith & Temple and will start the production of linings for gloves and mittens during the present month. 31 knitting machines and 890 woolen spindles will comprise the equipment. Thomas Temple, formerly of Fort Plain, is superintendent and buyer and A. W. Smith will sell the production. A dye house is operated in connection with the knitting plant.

*New York, Utica. The Illma Underwear Co., reported in December as incorporated with capital stock of $18,000 and installing 12 knitting machines and 20 sewing machines for the manufacture of underwear, has started operations.

New York, Utica. The Artistic Knit Goods Co. has been incorporated with capital stock of $50,000. W. E. Lewis, president of the Crescent Underwear Co. and the Genesee Underwear Co. of Utica, A. G. Lenox, and L. E. Post of New York are the incorporators. It is stated that a new plant will be equipped immediately.

*North Carolina, Burlington. The Whitehead Hosiery Mills, which we reported incorporated in October with authorized capital stock of $100,000 ($10,000 paid in), has completed the building and installed 50 knitting machines for the manufacture of men's lisle and mercerized hosiery. A 9 to 12 horse-power gasolene engine is needed to complete the equipment. J. W. Merry is pres., S. M. Hornaday, treas., and R. H. Whitehead, sec'y., manager and buyer.

*North Carolina, Drexel. D. B. Mull whom we have previously reported as contemplating the erection of a hosiery mill is going forward with plans.

*North Carolina, Fayetteville. Several months ago there was a rumor that a knitting mill would be established at this place. It now develops that J. P. Ewing of Dillon, S. C., has since secured a building in which knitting machinery will be installed.

North Carolina, Flat Rock. The Trident Hosiery Mills is a new concern with capital stock of $15,000 which has started the manufacture of seamless half hose. 75 latch needle machines have been installed. A. L. Bossett is treasurer and buyer. 12s, 20s and 30s white mule spun yarns are bought. The product is sold direct.

*Ohio, Cleveland. Nearly all the machinery has been installed in the Raven Knitting Co., reported incorporated in September with a capital stock of $10,000. The complete equipment will consist of nine imported automatic machines. Woolen and worsted fancy knit goods are the product. C. A. Raven is president, Carl Raid, treasurer, and Gustav Schubert, superintendent. The goods are sold through Arthur W. Wood of New York.

Ohio, Columbus, The Capital Knitting Company which we reported organized in December, has started manufacturing at 247-249 No. Front St. D. W. Shaw and H. E. Hare are the officers.

Pennsylvania, Bethlehem. M. S. Weaver, formerly with the Hanover Mfg. Co., has purchased the building and equipment of the branch mill of the Doylestown Hosiery Co. at 11th Ave. and Page St. Mr. Weaver is endeavoring to arrange for the starting of the mill again under the name of the West End Hosiery Mills and expects to operate the plant on children's ribbed hosiery. The plant contains 22 knitting machines, 27 ribbers and 6 loopers.

*Pennsylvania, Dauberville. The new knitting plant being started by Titus Seidel of Reading will be known as the Colonial Hosiery Mill and will be a branch of the Colonial Hosiery Mill of Reading,

also owned by Mr. Seidel. Half hose will be the product. All mail should be addressed to 810 Windsor St., Reading, Pa.

Pennsylvania, Philadelphia. The Columbia Knitting Mills have recently been started up at 2427 Mascher Street, by Robert Mullin. The plant contains 43 knitters and 6 loopers which are run on 176-needle half hose, using 22s to 50s C. P. yarn on cones. The mill is run by electricity and the production sold direct.

Pennsylvania, Philadelphia. E. B. Miller & Co., have started up a plant for the manufacture of 176-needle hosiery of cotton, at 2834 E. Venango St., where they are operating 10 knitters by electricity, selling the production direct.

Pennsylvania, Pottstown. A new knitting mill has just started up in this city which will be known as the Camel Hosiery Co. The officers are Allen B. Kerr, president, and Arthur Booth, treasurer and general manager. The plant will be started up with 22 knitting machines and will manufacture seamless hosiery of cotton.

Pennsylvania, Reading. The Gruber Knitting Co. have secured quarters at 746 Cherry St., and will begin the manufacture of men's cotton half hose, 176-needle goods, on February 1. The plant will be equipped with 18 knitters, 4 ribbers and 1 welter, and the production will be sold in the grey.

Pennsylvania, Reading. The Gloss Knitting Mills, a new concern which was started up during the month of June, 1907, are located at 8th and Spring streets, where they are operating 20 knitting machines on cotton and mercerized seamless half hose.

*Pennsylvania, Reading. The Terrey Hosiery Company, 1128 Robinson St., Reading, Pa., which we reported as starting a new plant, has commenced the manufacture of fine gauge hosiery.

Pennsylvania, Scranton. The Scranton Hand Knitting Works, which we reported would be incorporated with capital stock of $50,000, are now operating four knitting machines and three ribbers on woolen half hose. The plant is run by electricity. Plans are made for greatly enlarging the business.

Pennsylvania, South Bethlehem. The Pearson Knitting Mills have just started up a plant at 440 Seneca St. for the manufacture of children's vests and women's skirts, selling the product through Lindsay J. Riggins, 251 Church St., New York City. The mill will contain 10 knitting machines on which will be used 10s to 22s cotton yarns on cones. The officers are A. F. Pearson, president, treasurer and buyer, and R. D. Pearson, general manager. 4 machines are now in operation and the others are contracted for and are expected in a few days.

*Tennessee, Madisonville. The machinery equipment for the Madisonville Knitting Mills, the organization of which we have reported from time to time, has been provided for. 30 knitting machines and 2 sewing machines will be operated on high grade ladies' seamless hosiery, beginning work about March 1, 1908. This company has a capital stock of $25,000, $15,000 paid in. R. C. Kefauver is president and Tom L. Upton is treasurer and buyer. The product will be dyed and finished and sold through James Jamison & Co., Norfolk.

Wisconsin, Fairchild. John Arquette, who is connected with the knitting mill which we reported would be started here last December, advises that he started a plant for the manufacture of mittens, caps and wool hosiery, giving employment to 15 hands. The plant is in operation at present, but Mr. Arquette advises that he expects to remove to Milwaukee.

*Wisconsin, Luxemburg. The Inland Knitting Works have been incorporated with capital stock of $20,000. Peter Boucher, Louis Bellum and Jule Moreaux are the incorporators. This item has been given before as projected under the name of the Inland Woolen Mill. It is understood that the plans have been completed and that manufacturing will commence immediately.

Enlargements and Improvements.

*Alabama, Alexander City. An addition to the Russell Mfg. Co. for which construction work was started in June, is nearly completed and 2736 spindles will be installed within a few weeks. The new spindles will supply yarn to the knitting department of this company. Light weight cotton ribbed vests are manufactured on 30 latch needle and 30 sewing machines.

*Massachusetts, Great Barrington. The Reliable Mfg. Co. of Canaan, Conn., will be removed to this place and will be known hereafter as the Reliable Knitting Co. The new company has a capital stock of $55,000 and will add a large amount of machinery to the equipment operated at Canaan. It is expected that manufacturing will begin about March 1. Perley A. Russell is president of the new company, John H. C. Church is treasurer, and Walter J. Roberts, who was president and superintendent of the old Reliable Mfg Co., is agent. The stockholders will hold a meeting after the removal is completed to elect new and permanent officers. It is said the complete equipment will be 60 knitting machines. Men's and children's half hose is the product. P. A. Russell takes $15,000 in stock, turning in his mill building at $12,000 and $3,000 in cash. Frank Curtiss has $8,000 in stock, and J. H. C. Church has $2,000.

New Hampshire, Lakeport. H. H. Wood & Co., manufacturers of infants', misses', men's and women's hosiery, ribbed and flat, on 6 sets and 150 latch needle knitting machines, are erecting a 50 ft. addition to their storehouse. The plant is running full time after the recent shut-down and expects no further curtailment.

New Jersey, Newark. The Blauvelt Knitting Company has just bought additional machinery which nearly doubles the capacity of their plant, which is now located at 327 Academy St. Worsted knit goods are manufactured on 16 flat knitting machines and 12 sewing machines. L. Blauvelt is sec., mgr. and buyer and reports a very successful year with good outlook for 1908.

New York, Brooklyn. The Utopian Knitting

Works, operating a plant at 45 Walker St., N. Y., has secured larger quarters at 232 Throop Ave., this borough, and will soon move their entire plant and install additional machinery for the manufacture of sweater coats, etc. At present 30 knitting machines are operated on sweaters and fancy cotton goods. S. Rottenberg is prop. and buys wool, worsted, merino and cotton yarns.

*New York, Clinton. The Clinton Knitting Co., which we reported shut down in December to make extensive enlargements which would practically double the plant, is making rapid progress and the plant will soon be in operation. As reported in December, the plant will be started up as one of a chain of mills operated by Ladd J. Lewis, head of the Lewis Knitting Co. of Sauquoit.

New York, Cohoes. The greater part of the Victor Knitting Mills Co. is closed on account of a new boiler being installed. The plant will resume operations in full as soon as the new boiler is connected. 13 sets, 110 knitting and 500 sewing machines are operated on wool and camel's-hair fleeced, jersey ribbed, and flat underwear. J. A. Brooks is pres. and treas., and Jos. Stewart is sec'y. The product is dyed and sold direct at 53 Leonard St., New York.

Mills Starting Up.

*Kentucky, Paducah. The Wisdom Hosiery Co., which has taken over the plant of the bankrupt Dixie Mills Co., has started manufacturing with practically a full force. H. F. Drenk of Riverside, N. J., is supt. The other officers have been given in previous reports.

New York, Amsterdam. No. 3 Mill of A. V. Morris & Sons, located at Chuctanunda & Livingston Sts., which has been idle for several weeks, has started up and will be operated night and day, the firm having received orders to warrant this general resumption of business. It is reported that an entirely new line of goods, sweater jackets, will be manufactured.

New York, Winsor. The Winsor Glove & Mitten Co. has resumed work and reports that prospects are good for running the plant in full indefinitely.

Pennsylvania, Copley. The Copley Knitting Mills Co., which has been shut down for the past few weeks, reported that the plant will be started up again within a few days. Many orders have been booked, and their machinery will be started on full time. They are manufacturing women's ribbed cotton vests only, on 10 frames, 1 sleever and 9 sewing machines. The product is sold direct and through Wm. H. Shelp and Condit & Arnold. A. D. Levan is superintendent and buyer.

Pennsylvania, Pittston. J. W. Thomas & Son, 116 Luzerne Ave., whose plant has been shut down for several weeks, are to resume operations within a few days as the result of numerous orders being received. 188-needle half hose is manufactured on 6 knitters and 2 ribbers. The product is sold through John Mains, 256 Church St., New York.

Personals.

M. H. Shufelt has severed his connection as overseer of knitting with Jos. Simpson & Sons, Toronto Knitting Factory, Toronto, Ont., Canada.

Wm. W. Duckworth has severed his connection with the hosiery department of the Wiscassett Mills, Albemarle, N. C., to accept a position at Ipswich, Mass.

Chas. Lovell, for several years connected with the Ipswich Mills, Ipswich, Mass., has severed his connection with that company as assistant agent. He resigns to accept a position at the Brown Stocking Company.

Wm. T. Baker has been elected president of the Utica Knitting Company, Utica, N. Y., John W. Allis is vice-president and Quentin McAen, treasurer and general manager.

Samuel Wolfenden, overseer of dyeing at the Utica Knitting Company, Utica, N. Y., has severed his connection with that company after six years of service and bought an interest in the Cohoes Dyeing Company, Cohoes, N. Y.

Willis Ogden, overseer of finishing for the Perry Knitting Company, Perry, N. Y., has been promoted to the position as assistant superintendent of the same mill.

S. J. Scudder, manager of the Leon Knitting Mfg. Company, St. Johnsville, N. Y., has severed his connection with that company and is to engage in other business in Rochester, N. Y.

M. H. Shufelt has accepted a position as overseer of knitting for the Norwich Knitting Company, Norwich, N. Y. He was formerly employed at Jos. Simpson & Sons, Toronto, Ont., Canada.

J. W. Sedgwick has accepted a position as overseer of carding and spinning for the Fonda Glove Lining Co., Fonda, N. Y.

B. F. Nuttall has accepted a position as superintendent of the cotton department of the Standard Knitting Mills, Knoxville, Tenn. He was formerly employed as overseer of carding at the Indian Head Mills, Cordova, Ala.

John Spillane, Sr., has acepted a position as superintendent of the Alpha Knitting Company, Schenectady, N. Y.

Chas. Lovell has accepted a position with the Brown Stocking Company as overseer of dyeing and finishing. He was formerly employed at the Ipswich Mills, Ipswich, Mass.

Jacob H. Davis has accepted a position as superintendent and manager of the Michigan Underwear Company, Detroit, Mich. He comes from Toledo, Ohio.

J. F. Tomblin has accepted a position as superintendent for the Knoxville Knitting Mills, Knoxville, Tenn.

Geo. W. Davenport has accepted a position as overseer of carding and spinning for the Portage Hosiery Company, Portage, Wis.

New Machinery and Processes.

This department is designed to present from month to month a brief mention of new machinery, devices and processes being brought out in this country and abroad, that are of interest to textile manufacturers. It is not a list of patents, but of improvements coming on the market. The idea being to present to our readers a systematic monthly record of new machinery etc., of interest to textile mill men.
We invite machine builders and others to send us such information for this department.

Banding Machine. The Brown-St. Onge Co., Providence, R. I., have taken the agency for Culver's improved banding machine. It is automatic in action, makes nine bands at one operation, and will give any length of twist required. The twist is put in by cut gears, thus ensuring uniformity.

The Geyser Water Heater. The C. G. Sargent's Sons, Corp., Graniteville, Mass., are putting on the market a patented device to be used in connection with heating liquids contained in tanks or vats, taking the place of the direct jet of steam from an open pipe, doing the work more quickly, more economically and more evenly than the old fashioned method. It is illustrated on another page of this issue.

Weighting Spinning Rolls. Walter Bueckmann, Gladbach, Germany. An improved attachment for weighting the top rolls of spinning frames.

Self-Cleansing Humidifier. Mather & Platt, Ltd., Manchester, Eng. The arrangement is such that water under a fairly high pressure is conveyed to a series of humidifiers, fixed near the ceiling at more or less regular intervals. At these points it is broken up into fine particles, and is diffused by strong currents of air all over the room. A new form of filter is applied to each apparatus and works independently.

Card Feed. Oscar Schimmel & Co., Chemnitz, Germany. An intermediate card feed for second breakers and finishers which it is claimed results in very uniform work.

A Loom for Turkish Towels. Rudolf Bergman, Prag Karollinenthal, Austria. A method of driving the lay of the Turkish towel loom in order to produce the loops in the warp.

Mule Spindle Bearing. G. Josephy's Erben, Bielitz, Austria. A method of setting and driving mule spindles, by which it is claimed the spindle is kept balanced and in exact position, giving much better results than has heretofore been possible.

Winder for Mules. Saechsischen Maschinenfabrik, Chemnitz, Germany. An attachment for mules by which the tension of the yarn during winding can be adjusted as desired.

Carpet Loom. M. Protzen & Son, Berlin, Germany. A carpet loom especially adapted for weaving very wide goods.

Dyeing Machine. A dyeing machine in which the liquor is forced under pressure through the material to be dyed.

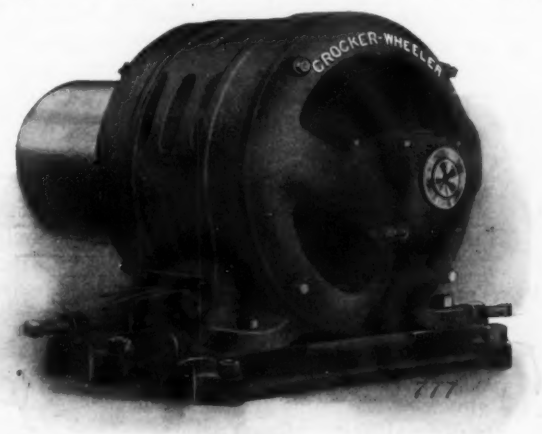
Skein-Spooler. Mueller & Siller, Barmen, Germany. An improved machine for spooling yarn from the skein. It is said to be capable of largely increasing production with a larger quantity wound on spool than has heretofore been possible.

Dyeing and Bleaching Machine. Oscar Rothemann, Moelndal, Sweden. A machine for dyeing and bleaching yarn on paper tubes. Tests of the machine in Swedish mills have been made with very satisfactory results, both as regards quality and amount of work done.

Yarn Moistening Apparatus. Braumwoll-Spinnerei Brodetz Kuffler & Reichel, Vienna, Austria. A machine for moistening yarn as it comes from the spinning room. It is automatic in operation and is said to save much time and labor, as well as to give more uniform saturation of the yarn than by the ordinary methods of storage in damp places.

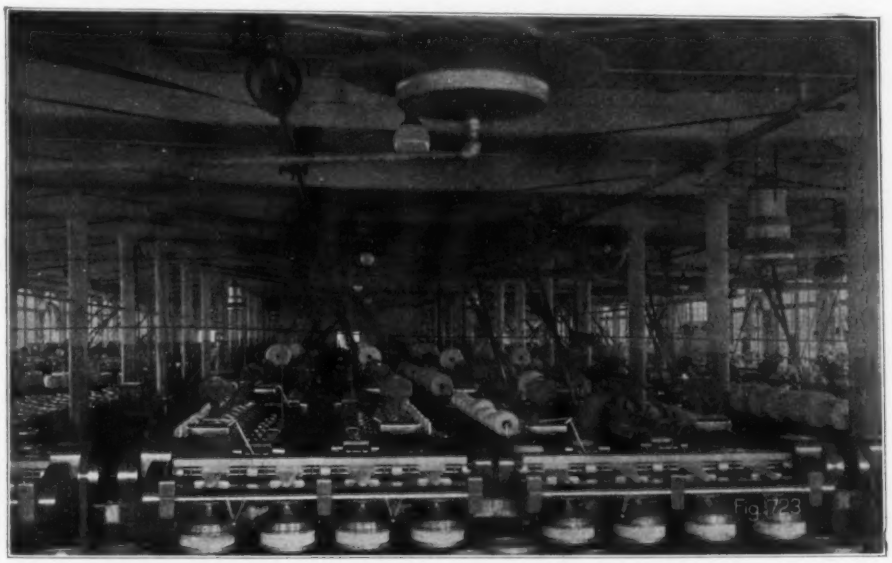
A NEW INDUCTION MOTOR.

An entirely new design of polyphase induction motor has been put on the market by the Crocker-Wheeler Company, Ampere, N. J. It differs in its mechanical construction from anything previously made and embodies many new features tending toward flexibility, accessibility and interchangeability of parts.



A NEW INDUCTION MOTOR.

The stator frame, which supports the core and winding, is ribbed laterally and longitudinally to combine strength and lightness, and the bearing brackets are bolted to the ends. The core and frame are well ventilated to secure uniform and low temperatures throughout. The stator winding consists of form wound coils held in the slots by means of wedges, and the projecting ends are protected both electrically and mechanically by means of heavy insulation.



A MILL INSTALLATION OF THE CROCKER-WHEELER INDUCTION MOTOR.

The motor consists of sheet steel lamina-

tions mounted on a cast iron spider and carrying the winding in partly closed slots. The motors are wound either with a squirrel cage winding, consisting of solid copper bars securely fastened to heavy copper end rings, or, when heavy starting torque is required, of a regular three phase winding tapped to collector rings for the purpose of inserting starting resistance.

The three-arm bearing brackets are designed for great strength and rigidity, and are arranged to be rotated for mounting on walls or ceilings without disturbing the alignment of the bearings. The bearings, of the ring oiling type, are provided with removable caps to facilitate removal of the motor.

The journal boxes are of the well-known Crocker-Wheeler sealed type which are free from oil slinging and absolutely dust proof. The absence of dust in the journals reduces wear to a minimum and thus insures a long life for the motor.

The motors are built for 25 and for 60 cycles, for two or three phase. The sizes range from 25 to 100 h. p. and voltage from 220 to 2,300. The motors are wound specially, however, for any voltage.

Many details of the construction and a number of applications are described in bulletin 88 recently issued by the Crocker-Wheeler Company.

The chief advantage of induction motors for textile mills is their constant speed and total absence of fire danger.

DIASTAFOR.

During the last three or four years, many American textile manufacturers, traveling through Europe, have had called to their attention a product known as Diastafor, manufactured by Hauser and Sobotka, Vienna, Austria, also by the German Diamalt Co., Munich, and more recently by the British Diamalt Co., 11 and 13 Southwark St., London, S. E. The American rights for this product are owned by the American Diamalt Co., Riverside, Cincinnati, Ohio, whose president is Julius Fleischmann, well known in the yeast business. A large factory has been built for the manufacture of Diastafor.

Diastafor can be used on cotton, woolen, worsted, silk, half-silk and in fact, on any animal or vegetable fabric that is dyed, dressed or finished. It is a highly concentrated and soluble enzyme preparation made by a modern process. The value of this product in the textile industries depends upon its regular and constant solvent action on starch. Diastafor is easily and completely soluble in water. It is free from alkalies, mineral acids and fats and is said to be absolutely without injurious action on vegetable and animal fibers, or on natural and artificial dyestuffs. Diastafor is capable of extended employment in the dressing and finishing of all kinds of fabrics. The removal of starch and sizes from goods by means of soap, alkali and water is a mechanical process, whereas the use of Diastafor makes it a chemical process. Diastafor not only dissolves or liquefies starch, but also possesses a distinct action on the natural mucilaginous matters adherent to vegetable fibers. The solvent action that Diastafor has on starch makes it possible to produce sizing and finishing compounds of any desired degree of solubility when this product is used with starch and other substances, thus effecting a more thorough penetration of the fiber, as by its use the full benefit of the starch is obtained.

Among the additional claims made for Diastafor is a reduction of cost by increasing the efficiency of the starch, uniformity as to both quality and effect, and an increase in the brightness and fastness of colors. Detailed instructions regarding the many uses of Diastafor will be supplied by the American agents.

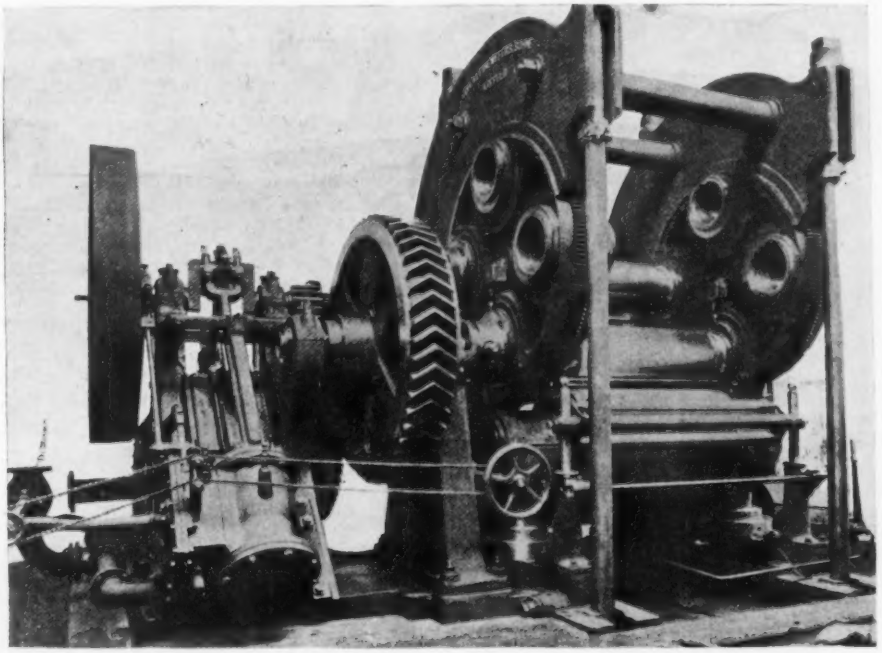
The average yield of the cotton crop has increased from 168 pounds per acre in 1888 to 211 pounds per acre in 1905, and the acreage has increased from 19 million to 31 million acres.

During the calendar year of 1906 the exports of domestic manufactures from the United States aggregated $719,000,000, which was 41 per cent. of the total exports for that year.

THE LARGEST "SCHREINER" CALENDER.

According to the "Textile Recorder" of Manchester, England, the largest Schreiner calender ever built has recently been installed in the mill of R. Pickles in Burnley. The machine, of which we show an illustration, weighs 50 tons. It has four steel engraved rollers, and one woolen paper bowl. The double diagonal engines for driving the calender are capable of generating 120 h. p. Two rams, 12 inches in diameter, are operated by hydraulic pressure to cause the machine to work at a pressure of two tons per square inch, and the total maximum pressure capable of being produced is 500 tons. The four steel bowls are each 16 inches in diameter, the woolen paper bowl being 32 inches in diameter, and the working face of the latter is 42 inches. All the gears throughout the calender are machine cut. Notwithstanding the size of the calender and the enormous pressure capable of being exerted the machine works remarkably easily and well.

This large calender was built by Joh. Kleinewefer's Sons, Krefeld, Germany, for whom A. W. Buhlmann, 487 Broadway, New York, is the American agent.



A MAMMOTH SCHREINER CALENDER.

THE GEYSER WATER HEATER.

The C. G. Sargent's Sons, Corp., of Graniteville, Mass., are introducing a patented device which ought to be welcomed in the dye house. It takes the place of the method commonly employed of inserting a direct jet of steam from the end of an open pipe when heating liquids contained in tanks or vats.

The heater is made in two patterns. One pattern has a foot which may be bolted directly to the inside of the tank, the steam entering through a hole in the tank and the foot. The other pattern has a plain end which is secured directly to the pipe and suspended into the tank.

Experiment has proved that this heater is

capable of raising a given volume of water to about 15 per cent. higher temperature in the same time than can be obtained by a common jet of steam. Or put in a different way, it will heat a given volume of water to a given temperature in from 70 to 80 per cent. of the time required by a regular jet of steam

THE "GEYSER" WATER HEATER.

from an open pipe. The disagreeable pounding and crackling noise so noticeable when a jet of steam is introduced into a liquid is practically eliminated. The full thermal value of the steam is utilized, its heat energy being introduced directly into the liquid, transferred to same and fully diffused.

The heater, which is made either of all brass or with cast iron shell and wrought iron pipe, is so constructed that a rapid and complete circulation of the liquid is obtained, thus very evenly diffusing the heat and raising the temperature uniformly in all parts of the tank.

Its usefulness in dye houses, bleacheries, tanneries and all industries where it is necessary to heat volumes of water to a high temperature in an economical manner will be readily appreciated. It may also be used for heating water in supplying tanks for sprinkler systems.

THE MANUFACTURER'S BALANCE WHEEL.

Following many years of marvelous prosperity comes a period of financial stringency and a retrenchment in buying. The situation is caused by a state of mind rather than by unsound currency or over-production, and the present period promises to be less serious in both effect and duration than most periods of business depression, commonly called "hard times." However, the period of curtailment prevailing throughout this country has been useful in that it is compelling manufacturers and merchants to turn their attention toward trade in other countries.

The experience of one large engineering

R. HANCOCK, IN CHARGE OF EXPORT TRADE.

concern in developing a foreign trade will doubtless be of interest to other manufacturers. It demonstrates the importance of personal representation on the spot.

So long as the normal output was required to supply the home market, the B. F. Sturtevant Company, in common with many other manufacturers, followed the path of least resistance, cultivating the trade in this country but not giving the export business the attention it deserved. The European trade of the B. F. Sturtevant Company has been for years

and still is handled through the Sturtevant Engineering Company of London under the able direction of George A. Mower.

In Hyde Park the B. F. Sturtevant Company has a magnificent new plant fully equipped with the latest and best machinery and apparatus, and of such size and arrangement as comfortably and economically to employ 2,500 hands. The works are said to be the largest in the world devoted to the manufacture of the products of this company. As originally planned, provision was made for still further extension, so that the plant could easily be made of a size that would supply the world with its products while maintaining the present high standard of excellence and promptness in shipment. With these facilities it is easy to see that the home market alone is no more than sufficient, and when this market slumps trade must be carried into other fields, otherwise the works must be operated at less than economical capacity. These facts show the necessity of a balance wheel or sheet anchor.

NEW WORKS OF THE B. F. STURTEVANT CO., AT HYDE PARK, MASS.

MAP OF EUROPE, SHOWING POINTS OF DIRECT REPRESENTATION.

The manufacturer in this country is at a considerable distance from European mar-

kets, a condition that causes ignorance regarding the class of goods required, the customs of foreign countries, and such matters as tariffs, insurance, dock dues, etc., a knowledge of which is so necessary to the smooth, economical handling of export business. Doubtless the average manufacturer is similarly situated. After realizing the desirability of finding a market in foreign countries for its products, the B. F. Sturtevant Company set about overcoming the prevailing difficulties. The first step was a better acquaintance with the conditions of foreign sale and export. To secure this information and acquaintance by sending a man to study the problem would cause a prohibitive delay due to the fact that many years would be required for the representative to become sufficiently familiar with European trade to talk authoritatively on such matters. The alternative was to reverse the plan and get assistance from a man already acquainted with the export trade and at the same time having a thorough knowledge of the products of the Sturtevant Company.

To develop this export business the B. F. Sturtevant Company secured the assistance of an English engineer, R. Hancock, who has had extensive experience in handling similar products abroad, and whose knowledge extends over the trade situation as well as the industrial conditions throughout Europe. Just before associating himself with the Sturtevant Company, Mr. Hancock traveled throughout all European countries ascertaining the requirements of the trade and establishing further representatives on the Continent. This information enables the B. F. Sturtevant Company to send abroad standard products that meet the special demands of the various European nations, and successfully compete with apparatus manufactured abroad.

At the present time the Sturtevant Company has direct representation in London, Glasgow, Paris, Berlin, Vienna, Brussels, Turin, Stockholm, St. Petersburg, Moscow, Odessa, Kief, Warsaw, Karkoff and Herodfordshire. Further arrangements are now being made for representation in Japan, China and many of the British colonies.

AN EUROPEAN TOUR FOR AMERICAN WOOLEN MANUFACTURERS.

In our December issue we published a lecture delivered by J. F. Siddle, of Huddersfield, England, in which he gave an account of a trip with fifteen other gentlemen to the Continent of Europe, made for the purpose of studying Continental methods of carding and spinning woolen yarn. A large number of mills were visited and the Englishmen had an excellent opportunity of studying Continental methods and comparing them with the English methods of carding and spinning.

As a result of this trip Mr. Siddle later installed some Continental cards in his mill and has found that they are giving much better results than he obtained from his English machinery.

G. W. L. Neumann, who organized the English excursion, is now planning for a similar trip by American manufacturers, in order that they may have an opportunity of studying Continental methods and introducing improvements in machinery and processes in their American mills. As stated in an announcement in our advertising columns of this issue, Mr. Neumann expects to be in New York in May to make arrangements for this trip and he invites all who are interested to address him care of Neumann & Sons, 82a New North Road, Huddersfield, England.

As it is to be a thoroughly business trip Mr. Neumann desires to limit the number to those who are identified with textile manufacturing, and for that reason he would like to have all applications accompanied by a statement of the correspondent's position in the trade.

This is an exceptional opportunity for enterprising manufacturers to study foreign methods as a means of bringing their methods of manufacturing abreast of the latest developments abroad. No amount of correspondence or of reading matter dealing with textile process can take the place of personal inspection of processes, and we trust that many of our manufacturers will avail themselves of this opportunity.

Dyeing, Bleaching, Printing, Etc.

COMPARISON OF SIZING MATERIALS.

BY HOWARD L. QUICK.

The following method gives a comparatively complete determination of any sizing material likely to be used on textile goods: The moisture is first determined. A watch glass is carefully dried and weighed. A small amount of the starch or other material to be tested is spread in a thin layer over the central part of the glass. The glass with the sample is then weighed and the difference between the first and second weights is the weight of the sample. The glass with the sample is then put in a drying oven for an hour or so. It should be covered with a piece of filter paper rolled in the form of a cone, care being taken that the paper does not touch the sample. The temperature of the oven should be about 240° F. Any kind of an oven will do so long as it is dry and has the correct temperature. The glass with the sample is then weighed and put back in the oven for a short time, after which it is weighed again. If the weight remains constant the sample may be assumed to be dry. The difference between the final weight and the weight before heating represents the amount of moisture. From this value the percentage of moisture may easily be computed.

In the case of starch the determination of the presence of mineral adulterations by floating on chloroform, their quantitative determination by burning, microscopic investigation to determine the variety of the starch, and chemical analysis for the amount of pure starch and the material used as an adulterant are all of some value. Many methods are given and they need not be described here. If a sizing material contains an adulterant it should not be used. The purchaser has to pay for the adulterant which is of no value to him.

Having first carefully determined the amount of moisture we proceed as follows: Standard solutions of the samples of sizes are made up in about the same proportions as would be used in actual work. In each case enough of the size is used so that its weight dry and the amount of water would be the same. Assuming one ounce dry of each sample to be used, one and one-quarter ounces of a sample showing 20 per cent. moisture would be taken. About a quart of each solution would be sufficient. Gelatines, glues, and gums should be allowed to swell for at least two hours before boiling. Gum arabic should be dissolved at 180° F. before boiling. Starches and dextrine should be stirred in the cold water for at least ten minutes and then boiled for fully twenty minutes. After boiling it is best to make the solutions up to their original weight with very hot water with much stirring. If only one class of starch is being tested this should be omitted.

A piece of print cloth which has been carefully boiled off, bleached and allowed to hang in a room with normal atmospheric conditions for a day is then cut into pieces one yard long and full width. Each piece is numbered to correspond to a sample of size. They should all be kept together and not allowed to come in contact with any excessive moisture. It can then be safely assumed that each piece has the same amount of moisture in relation to its weight. Each piece is weighed and its weight tabulated. The pieces should be trimmed so as to weigh as nearly the same as possible.

Each piece is then immersed in the solution corresponding to its number and allowed to remain for four or five minutes. While in the solutions the pieces should be stirred about so that all the surface may come into contact with the size. In the meantime a small frame is made from four strips of wood about half an inch thick and two inches wide. It should be just the size of the pieces of cloth and have the narrow edges turned out. About three dozen fine wire nails are then driven through each piece of wood so that the points protrude about half an inch, making a small pin frame.

One piece of cloth is taken from its solution, squeezed into a strip about an inch wide and wrung out through a small hand wringer or any other convenient apparatus. It is then stretched on the frame as tightly as possible and allowed to dry near a heating coil.

Two pieces may be put on the same frame at a time. If only one frame is made only two samples should be immersed in their respective solutions at a time. The wringer should be cleaned, dried, and then very slightly dampened with a moist rag before squeezing each sample. A sample of cloth is sized in this way from each solution of size. They should all be very carefully dried but not baked or allowed to have the natural moisture driven off. The samples after cooling are carefully folded and weighed. The increase in weight represents the amount of size taken up plus a certain amount of moisture not driven off from the size. For general results this moisture is best neglected, since if the samples are dried under the same conditions and weighed within about an hour after being completely dried, the amount of moisture in the size in each sample will be approximately the same.

This test is only quantitative in so far as it is a comparison of several samples among themselves or with a standard. It will not answer as an accurate determination of the amount to be used in actual practice. With careful work and all the samples of size of the same variety the amount of size in each piece should be nearly the same. If any one piece takes up very much more or less of the size than the average the experiment should be repeated with this one. If it continues to come much different it may be assumed that the penetration of this size is greater or less than the others as the case may be.

The pieces of cloth may now be examined for the characteristic actions of each sizing material. The stiffness and elasticity may be compared. By handling it may be determined how much usage they will stand. The action in the presence of moisture and under different atmospheric conditions may be observed. This is an excellent method, if carried out carefully, of comparing the characteristic qualities of the many varieties of starch. In the comparisons due allowance must be made for the different amounts of size taken up by the sample and for the amount of moisture in the original samples. One pound of an absolutely dry sample is equal to 1.11 pounds of a sample having 10 per cent. moisture or to 1.25 pounds of a sample having 20 per cent. moisture.

If the size is to be used on yarns a rope of two or three dozen ends and two yards in length may be made up and treated in a similar manner. Care should be taken to hold them out straight when drying. The ends should be kept tight and not allowed to stick together. When dried and weighed they may be compared as before. In this case their tensile strength should be observed and compared with similar unsized pieces.

Having completed these tests the solutions left may be used for viscosity tests, making jellies, and any other observations that may be desired.

Comparisons may also be made of a great variety of mixtures in this way without either any great cost, trouble, or danger of spoiling work.

After this an actual working test may safely be made with any samples that have shown up well by the tests. In making working tests care and accuracy must be used and prejudice left out. If a new material is selected to replace an old one, leave the old one out entirely and put the new one in. Do not use half of each. Many finishers will add a little of a new material to their concoction and then look for startling results. If they look hard enough and long enough they usually find something or imagine so. As a result of this finishing formulas are often found that are marvelous for their number and variety of ingredients.

A report issued by the Department of Trade and Commerce of the Dominion of Canada states that during the twelve months ending March 31, 1907, exports from Canada to the United States increased by $20,145,508, or 22 1/2 per cent., while the exports to Great Britain increased by 7 per cent. In the same time the imports from Great Britain increased by 24 per cent. and from the United States 23 1/2 per cent.

DYEING SULPHUR COLORS.

A method of dyeing sulphur colors, having for its object the prevention of uneven shades, has been proposed by Hans Toepfer, Elberfeld, Germany, and recently patented in this country. The inventor describes his process as follows:

The new process consists in dyeing the material in baths containing the usual alkaline sulfids with the addition of ammonium salts. The favorable action of these compounds seems to be due to the fact that the ammonium salts neutralize the free alkali present in the dye baths containing sulfids of alkalies. Level and uniform shades are thus produced. It is worthy of note that in many cases the shades are deeper and faster to washing than those obtained without the employment of ammonium salts. An addition of soap, especially soft soap, is often advantageous. The new process is also adapted for machine dyeing.

A dye bath is prepared from 2,000 parts (by weight) of water, 15 parts of Katigen indigo B extra, 30 parts of crystallized sulfid of sodium, 8 parts of calcined sodium carbonate, 40 parts of Glauber salt, and 4 parts of soft soap. To this dye bath, heated to 90 deg. F., 3 parts of ammonium carbonate are added. The bath at once assumes the yellow color of the vat. 100 parts of cotton yarn are then dyed in this bath at 90 deg. F. for one hour, taking care that the material is always covered by the liquid. The dyed goods are squeezed out, exposed to the air, and well rinsed.

Ammonium carbonate can be replaced by other ammonium salts, such as ammonium chlorid, ammonium sulfate, etc. The dyeing can be done at a higher temperature or at the ordinary temperature. On account of the volatility of ammonium sulfid formed in the bath it is advantageous to dye at a moderate temperature.

The exports of silk from Lyon in 1906 amounted to $64,694,758, the principal purchasers being Great Britain and the United States.

A YARN DYEING MACHINE.

In this machine, recently patented, the dye liquor is forced through the yarn which is wound on perforated tubes. Fig. 1 shows

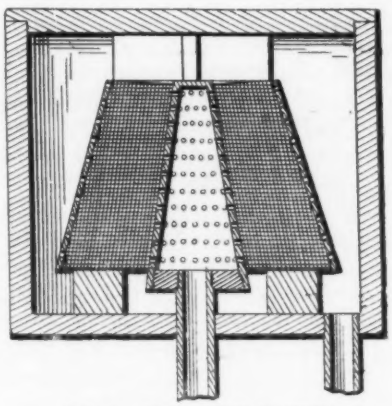


FIG. 1. YARN DYING MACHINE.

a vertical section of the tube, yarn, cover and pipe connections. Fig. 2 shows a ma-

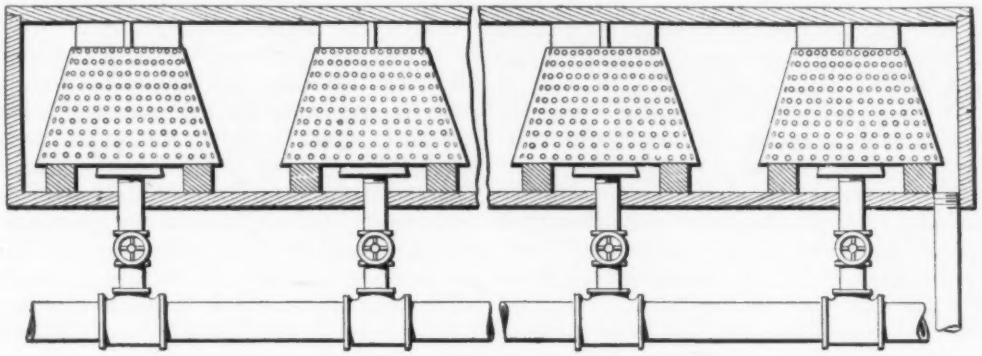


FIG. 2.

chine equipped with a series of four tubes, and enclosed in a dye box.

After the yarn is put in place and fixed by the jacket and binder, and the cover fastened, the dye is pumped into the box, passing through the holes in the cone, through the yarn and out at the sides and ends, filling the box and overflowing through the return pipe to the vat for subsequent use by the same process. After the yarn is thoroughly saturated with the dye the wash water is forced through the same way, avoiding handling the material a second time. By

the aid of the jacket and the cross binder the yarn cone is held in the same shape and condition during the entire process and is in the same shape after the dyeing and washing as before, thus avoiding rewinding. It is claimed that the method of holding the yarn during the dyeing and washing is an especial feature of the invention and attended with decided practical advantages. The pressure of the jacket and binder upon the yarn ensures uniformity and prevents the formation of channels or outlets and insures the uniform penetration by the dye uniformly to all parts of the material, as well as thorough rinsing thereafter.

By means of the three way valve the liquid can be forced through the cone from the inside outward, or from the outside inward; or it can be passed first one way and then the other, the overflow in either instance passing back to the vat through the three way valve and pipe, this passage, however, being controlled by another three way valve, so that when the rinsing water is passed through it can be sent to the waste pipe. The inlets are in the bottom of the tank, so that the cover can be removed and box loaded or unloaded without disconnecting any pipes.

A WATERPROOFING PROCESS.

A French process of waterproofing, specially adapted for hangings and decorative fabrics, has recently been patented in this country. It is described by the inventor as follows: The back of the fabric is covered with a coating composed of a mixture of whitening, or Spanish white and zinc white, half raw oil and a drier. For this purpose the fabric, wound on a warp beam, is passed between two pressure rollers, and receives between the warp beam and the rollers the composition in any suitable manner by hand or mechanically. The thickness of the coating which is variable at will is regulated by a movable guide or scraper which is arranged between the point where the composition is poured on the fabric and the pressure rollers. The fabric immediately after having been passed between these latter is conveyed into a stove heated to about 160° where it remains 12 to 24 hours.

On emerging from the stove, the fabric is rendered absolutely waterproof and has nevertheless not changed the appearance of its front face which has remained flexible while possessing great strength. The fabric is now ready for use, but generally receives an oil decoration by printing or in any other manner. This decoration is facilitated owing to the greasy coating applied to the back of the fabric and which has wholly or partially impregnated the latter. Instead of employing the decorated waterproof fabric it may be varnished on the front face by means of a greasy, dull, varnish having a spirit basis, which renders it washable, but this latter operation is not indispensable.

ON THE EXAMINATION OF WATERPROOF CLOTHS.

BY FREDERIC DANNERTH, PH.D.

The increasing number of so-called "raincloths" for which the claim is made that they resist the penetration of water brings with it the necessity for accurate methods for comparing the value of such fabrics. The two chief articles for which waterproof fabrics are demanded are raincoats and umbrella covers. Two other articles which may also be considered here are sail-cloths and bookbinder cloth. The methods of preparing the cloths in order to make them water-resistants are:

1. Impregnation with metallic salts.
2. Coating with oils, fats and waxes.
3. Coating with solutions of rubber.
4. Superficial solution by means of Schweitzer's reagent.

The first method finds application in the dressing of sail-cloth. The material is impregnated with alum and acetate of lime and is then entered in a "fixing-bath" containing waterglass. In some classes of goods this latter bath consists of a soap solution, in which case an insoluble aluminium or lime soap is formed in the fabric.

The second method is used for raincloths, signcloths, imitation leather, etc. The fabric is passed between hot rollers and then over the block of wax. By another method the wax is dissolved in benzine and the fab-

ric padded with this solution. As the latter method is much more expensive it is generally limited to high class ladies' dress goods.

In the third method the rubber is dissolved in carbon disulphide, chloroform and the like. The goods may be either coated or padded with the solution. As examples of this class of fabrics we have gossamer cloth, mackintosh cloth, bathing caps, etc.

The fourth method has found application in the manufacture of bookbinders' cloth and "Willesden canvas." It consists in passing the fabric through an ammoniacal solution of cupric oxide, which dissolves the cotton on the surface to a slight extent. A passage between hot rollers completes the operation.

The determinations to be made in the examination of waterproof fabrics include

1. The amount of wool, cotton and silk present.
2. The weight of the fabric per square yard.
3. The amount of matter soluble in 3 per cent. hydrochloric acid.
4. The amount of matter soluble in ether.
5. The percentage of ash.
6. The waterproof value.

1. Wool is separated from cotton by the usual method of boiling with a 10 per cent. solution of caustic potash for 15 minutes. Four per cent. is added to the weight of the cotton residue. The difference between this and 100 per cent. then represents the wool.

Wool is separated from silk by dipping the sample in concentrated hydrochloric acid for 3 minutes at 50° C., whereby the silk is dissolved.

Linen is separated from silk by treating with an alkaline solution of glycerol-copper sulphate, whereby the silk is dissolved.

2. A piece of the fabric exactly two inches square is accurately weighed in the air-dry condition. By multiplying this weight by 324 the weight of one square yard is obtained. The weight may also be found by weighing a sample having an area of 1/300th square yard (1.8 × 2.4 in.). The number of grains is equal to the number of ounces per yard 52 1/2 inches wide. The weights for other widths are calculated by proportion.

3. By treatment with a 3 per cent. solution of acid at 100° C. for 15 minutes, soaps will be decomposed and the inorganic matter will to a large extent be dissolved.

4. The fats which remain in the fabric after washing and drying the residue of the previous determination are soluble in ether and can therefore be estimated by extracting the sample in a soxhlet apparatus.

5. The ash is determined by igniting a weighed sample in a porcelain crucible until all the organic matter has been oxidized or burnt off. Weigh the residue and calculate to per cent. of the weighed sample.

6. The waterproof value of the fabric may be determined by the following method which has given good results:

A sample about two and one-half inches square is stretched across the mouth of an ordinary thistle tube, taking care that the sample contains no selvage as this is generally more pervious than the fabric proper. Fasten the sample, by means of a string, around the neck of the tube so that the face of the goods will be toward the inside, i. e., toward the water. The thistle tube filled with distilled water at 58° F. is supported by a clamp above a graduated cylinder and the amount of water passing through in 5 hours and in 10 hours is measured. A fabric which allows no water to pass through in 10 hours is considered first class. Another point which may be observed is the time which elapses before the appearance of the first drop on the outer surface.

The examination of rubbercoated cloths includes several special tests which are given below:

7. The percentage of "rubber and coating materials" is determined by immersing the goods in solvent naphtha or carbon disulphide for several hours in order to soften the coating; this is then removed by scraping with a blunt knife edge and the last particles removed by treatment with boiling carbondisulphide for 30 minutes. By weighing the sample before and after treatment, the loss, i. e., the percentage of coating material may be determined. A sample five inches square should be used for the test.

8. The tensile strength of the fabric is determined before and after the coating has been removed. For this purpose the usual

cloth-testing machines may be used.

9. The "drying" test. This test should give some idea of how a rubber cloth will wear when subjected to high temperatures. For this purpose the sample is placed in a drying oven heated to 120° F. for 5 hours and then allowed to lie in the air again for one hour. The "feel" of the cloth at the end of this test will show whether it has become brittle or has lost its elasticity.

10. A qualitative test for the mineral matter is sometimes desired and may then be carried out according to the usual methods of inorganic analysis. The substances which may be encountered are:

Sulphur, sulphides of sodium, lead and antimony, oxides of magnesium and zinc, chalk, gypsum and vermilion.

Below are given the results of three fabrics recently analyzed:

No. 1. A high class cravenette.

Warp and filling made of 2 ply worsted yarn.
Weight per square yard, 10.4 ounces.
"Breaking strain" (5 inches long, 1 inch wide), 30.2 pounds.
Matter soluble in 3 per cent. hydrochl. acid, 2.7 per cent.
Matter soluble in ether, 1.9 per cent.
Ash, 3 per cent.
Waterproof value: After 5 hours the water had completely passed through the fabric. Drops of water were visible on the outside of the sample 15 minutes after starting the test.

No. 2. A medium quality "raincloth."

Warp of twisted yarn (worsted and cotton).
Filling of worsted yarn.
Weight per square yard, 8 ounces.
"Breaking strain," 19.9 pounds.
Matter soluble in 3 per cent. HCl, 3.1 per cent.
Matter soluble in ether, 0.6 per cent.
Waterproof value: After 5 hours the outer surface of the fabric had become damp. After 10 hours half of the water had passed through.
Ash, 4 per cent.
Wool, 70.4 per cent.
Cotton, 25 per cent.

No. 3. An umbrella cloth (linen-gloria).

Warp of linen, 55.1 per cent.
Filling of silk, 24.5 per cent.
Matter soluble in 3 per cent. HCl (weighting materials, etc.), 20 per cent.
Matter soluble in ether, 0.5 per cent.
Waterproof value: After 10 hours no water had passed through the fabric.
Weight per square yard, 3 ounces.
Breaking strain.

(All calculations are based on "air-dry" material at a relative humidity of 50 per cent.)

THE HANDY-MAN IN THE DYEWORKS.

BY PETER MAGUIRE, F. C. S.

From the Dyer and Calico Printer.

The handy-men are not all in the service of the King. Some of them enhance the charm of the work-a-day life of civilians by entering the various spheres of industrial service. For he is "a good sort," an invaluable servant, indeed indispensable, is the handy-man. A cursory consideration of the wonderful capacities and amazing capabilities of this paragon among workmen is at least interesting, if not instructive.

Of all with any practical experience of dye-house routine work is there one who on reading these lines does not recollect with pride the exploits of at least one handy-man whose resourcefulness in all sorts of emergencies appeals to him as unique? The reader knows at least one, and has had daily need to make more or less reasonable demands on the capabilities of this particular paragon. And the reader, like the writer, may wish to lose no time in bringing forward, if only mentally, his own particular ideal.

"Jimmie" is the man the writer singles out as the champion handy-man. For many years "Jimmie" has been to the workers of a certain Yorkshire dye-house, as regards their actual work, not what the quack of the dingy-shop or street-corner is to some sections of the community, but the real conscientious, yet almost unconscious, dispenser of panacea for all evils.

His is a name to conjure with. Putting aside any description of his appearance, withholding any statistics as to his age, and without exposing any particulars concerning his family and out-of-hours life, lest some of his numerous confreres identify him, his genuine personality is always characterized by a geniality that is enviable. It is the possession of this very characteristic of geniality that would cause him to raise none but objections born of native-modesty against being dragged into prominence.

And the writer would gladly save him from the embarrassing attentions which would undoubtedly follow recognition and would spare him the discomfort of a popularity "Jimmie" would by no means willingly seek or desire.

His particular characteristics, as shown daily in the dyehouse, must alone be put on record. "Jimmie" received no special or continuous training in any one branch of the varied work of a dyehouse; neither has he "served his time" to dyeing, bleaching, joinering, mechanics, or any of the numerous professions that are called upon from time to time to supply the needs of the dyeworks.

He entered the dyehouse when a youth, and during the course of many, many years shifted from one job to another, as so many do; but he had not been unobservant, as so many are. Naturally gifted this way, his varied experience from systematically unloading a laden lurry right along through all the stages into the finishing rooms made him cognizant of innumerable quips and quirks.

He gained in his wanderings from grey-room to stock-room a store of information, which, in view of the undoubted value of specialization, might be classed by some as useless. This would be true of most men, but not of "Jimmie."

He has not spent time in his youth for nothing pottering about the dyehouse. He has not lent a hand times without number to joiners and mechanics engaged on breakdowns, repairs or renewals, without profiting some way.

The passing of time left him by no means proficient in any one department, but it brought him in due course tangible recognition in the shape of an "appointment" as handy-man to the concern he serves. He has held this appointment for years with credit, and, it is reasonable to believe, with proper appreciation. Anyhow, let us air his doings.

Should the progress of work be suddenly interrupted on some one machine by the untimely slipping or smashing of a driving-belt, the masterly assistance of "Jimmie" is always yelled for from worker to worker across the rooms until he responds. He it is who can tighten or piece up that refractory belt, or in some marvelous way, if not unknown, certainly never excelled by any other man about the place, make the machine resume its task. "Jimmie" wastes no time in stupidly staring at the broken or slackened belt as is the almost invariable custom of the other men when such occasions present themselves. And he displays no annoying ostentation. He sets about his task, content with the faintest outward show of that confidence in his own abilities, which always goes a long way towards securing the successes he achieves. With a few sweeping glances in this direction and in that, his mind would grasp the actual circumstances of the situation. He seems to possess an innate knack of it, and quickly remedies the fault either by a deft twist of the belt to tighten it temporarily, or by the proper and rapid application of needle and lace. Or it may be that "Jimmie" points out that all that is required for immediate needs is a "dousing" of cold water or a sprinkling of powdered resin. In any case he can be relied upon never to fail where others have failed before him.

Besides his knack of perception he has the advantage of coming on the scenes of trouble with a cool head. Little jealousies prompt his critical fellow-workers to lay some stress on this, for they argue that they and not the handy-man are held responsible for the proper execution of the work under their immediate control, and "Jimmie" can come along without any harassing feelings that blame for faults will be laid on his shoulders. Be that as it may, and although the argument is not at all untenable, it does not detract from our paragon's successful adaptability. Because, to his other qualifications, must be added intrepidity.

Dealing with a troublesome driving belt

that has slipped from its pulley, "Jimmie" fearlessly climbs along uncertain footholds to the height of the driving shaft concerned, and, not noticing the anxious suspense displayed on the upturned faces of some half-dozen watchers, devotes a few short seconds to making certain his foothold, and—presto! —away runs the belt along its accustomed paths.

The accomplishment "to be able to kill a pig" falls into insignificance beside the able agility displayed by "Jimmie" on these occasions. These are the more exciting occurrences. "Jimmie" is the plumber when a water-pipe bursts or a steam-pipe parts from its joint or loses a valve. He has something to do with the cleaning of the engines, or overhauling them, on the occasional periods when such work is undertaken. He knows all about the intricacies of the dynamo, and can put a faulty arc lamp in order quickly and smartly. "Wiring" is by no means beyond him, and the sleuth-like ease with which he can locate a fused wire is nothing to the way he has of meeting many difficulties.

When a pipe is to be bent, a bracket to be made, or a piece of iron to be twisted to any desired shape, "Jimmie" is the trustworthy smith. He is equally smart with wood. A sudden demand for a wooden peg of a given size is responded to by "Jimmie." A broken ladder will be repaired by him while the man who brought it is enlarging on what calamities might have happened to him while mounting the defective structure. An impromptu table, bench, or scray, takes form with surprising rapidity under "Jimmie's" guiding hands.

He undertakes the tapping of a barrel of bisulphite of soda with the ease and unconcernedness noticeable in other men when only occupied in transferring a piece of tobacco from the waistcoat pocket to the mouth.

Enough may have been said to establish the claim laid for "Jimmie's" eminence among handy-men, but much more remains to be mentioned. He is not only the ready joiner, smith, electrician, mechanic, plumber, and general repairer of chattels and property movable and fixed; he has also a certain smattering of the rudiments of bleaching and dyeing that make him again of great use in other emergencies. He can take his turn at intelligently minding a machine, should the regular man be absent.

When arrangements have been suddenly made for a "night shift," and one man failed to put in his appearance at the appointed time, excusing himself later on the ground of short notice, "Jimmie" is the man who can be relied upon satisfactorily to fill the place of either boiler, bleacher, dyer, sizer, or drier. His other outstanding trait of character is willingness. He excels other workmen as much in that way as in other ways.

Through it all he is ever the "handy" man in the fullest sense of the word, the man to be on hand to do the immediate, ready job, even if roughly; work that suffices for the time-being to tide over unexpectedly occurring mishaps. And he is always as willing to wrap-up in unsightly old clothes and pack sheets and don rubber boots and leggings to clean out choked up drains and sewers, to clear the slimy sediment from indigo vats and to swill out lime or chemic cisterns, as to assume for a time the duties of cleanlier jobs.

Sudden demands for more color-solution, more chemicals, to keep up the supply to a working machine, unexpectedly running short, are met promptly, hurriedly, yet properly, by "Jimmie" the handy-man. To his show of intrepidity, readiness, adaptability, willingness, and usefulness remain to be added his conscientiousness and through it all, his light-heartedness. That he is conscientious is shown by his willingness.

But after all, this particular "Jimmie" is only one of a type common to most large works, for there are other handy-men who show the same intrepidity, readiness, adaptability, willingness, conscientiousness and general usefulness. Like "Jimmie," many of them are indispensable. Absence from the works would result in temporary chaos. Whether through illness, or "indisposition," absence for a short period, or even only for a half-day on such occasions when attend-

ance is desired at the burial or marriage of a relative or friend, the "Jimmies" are grievously missed.

Bleaching Merino Goods.

Editor Textile World Record:

Where can I get the best information on bleaching merino goods; that is, cotton and worsted mixed? I have used brimstone, but that takes away too much of the woolly feel. We have used peroxide, but that is too expensive for our class of work. We must have something that will give the goods a soft woolly feel. Plain (959).

The brimstone bleach has a tendency to make the goods feel harsh, but this can easily be avoided by giving them a rinsing in warm water; finish or soften the goods in the last water with 3 to 8 ounces soap to 10 gallons of water. I have used the brimstone bleach on men's merino and also children's all worsted stockings and never had any complaint.

We fulled the merino stockings first in an old-fashioned fulling mill, rinsing in warm water and then put them into the sulphur house over night; rinsed them again in the morning and never had any trouble. It is the same with all worsted hose. If the goods come out harsh the only remedy is to soften them with an olive oil or a white chip soap in lukewarm water, say 120°, then extract.

The brimstone method is the most common in use. There is but one other method in common use, that is the bisulphite method. Use bisulphite of soda and vitriol together or in separate baths. This method is used principally for loose wool. If the merino goods are well rinsed in clean, warm water and soaped in a lukewarm bath, there will be no further trouble. Perhaps the goods are dried at too high a temperature. This has a tendency to make the goods feel harsh. Bleacher.

It is reported that the number of trade unions in the United Kingdom increased from 151 in 1875 to 660 in 1905. The membership is given for the latter year as 1,567,519; the expenditures as $12,195,566; the average contribution per member, $7.94.

DYE RECIPES.

The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year.

Recipe No. 17.

Red on Cotton Yarn.

Tetrazo Red 6 B on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Tetrazo Red 6 B.
(American Dyewood Co., 154 William St., N. Y.)
25 lbs. Common Salt.

Enter yarn at 180° F. and dye at a boil for one hour.

Tetrazo Red 6 B possesses ordinary fastness, and is largely used both as a self color and for shading purposes.

It is valuable in union dyeing as it colors cotton and wool equally well.

Recipe No. 18.

Black on Worsted Yarn.

Alphanol Black B G on 100 lbs. worsted yarn. Prepare the dye bath with

4 lbs. Alphanol Black B G.
(Cassella Color Co., 182 Front St., New York.)
10 lbs. Glauber's Salt.
5 lbs. Acetic Acid.

Enter yarn at 105° F., raise to a boil in 1/2 hour, and then boil for one hour, finally adding a little acetic acid, if necessary, to exhaust the dyebath.

Alphanol Black B G dyes very evenly and produces an excellent shade of black which will be particularly desirable for dyeing dress goods and serges.

Recipe No. 19.

Brown on Worsted Yarn.

Chrome Brown G on 100 lbs. worsted yarn. Prepare the dye bath with

5 lbs. Chrome Brown G.
(C. Bischoff & Co., 451 Washington St., New York.)
10 lbs. Glauber's Salt.
1 lb. Acetic Acid.

Enter at 140° F. and dye at a boil for 1/2 hour. Then add

4 lbs. Acetic Acid

and boil 1/2 hour longer, and finally add

1 lb. Sulphuric Acid

to exhaust the dye bath. Cool the dye bath, then add

2 lbs. Potassium Bichromate

and boil 3/4 of an hour longer.

Chrome Brown G produces a bright reddish shade of brown possessing good fastness, and will be found of value as a self color, as well as for the dyeing of compound shades.

Recipe No. 20.

Orange Brown on Cotton Yarn.

Diamine Fast Brown R on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Diamine Fast Brown R.
(Cassella Color Co., 182 Front St., New York.)
1½ lbs. Soda Ash.
25 lbs. Common Salt.

Enter at 180° F. and dye at a boil for one hour.

Diamine Fast Brown R possesses very good fastness to light, chlorine, stoving and acids.

Recipe No. 21.

Bluish Grey on Worsted Yarn.

Compound Shade on 100 lbs. worsted yarn. Prepare the dye bath with

½ lb. Meta Chrome Blue G 276 Powder.
¼ lb. Meta Chrome Brown B Paste.
(Berlin Aniline Works, 213 Water St., New York.)
3 lbs. Meta Chrome Mordant.

Enter at 160° F., raise slowly to a boil and boil for two hours.

The compound shade produced in this way will be found to dye level in one bath and possess excellent fastness.

Recipe No. 22.

Green on Cotton Yarn.

Direct Green 1931 on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Direct Green 1931.
(E. M. Thayer & Co., 411 Atlantic Ave., Boston.)
30 lbs. Common Salt.

Enter yarn at a boil and dye at a boil for 30 minutes.

Direct Green 1931 is composed of Paranol Blue F F and Direct Yellow G in equal parts. By combination of these two products very bright shades of green may be obtained which are very fast to light.

Recipe No. 23.

Pink on Worsted Yarn.

Brilliant Kiton Red B on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Brilliant Kiton Red B.
(Klipstein & Co., 122 Pearl St., New York.)
10 lbs. Glauber's Salt.
3-5 lbs. Sulphuric Acid.

Enter at 180° F. and dye at a boil for one hour.

Brilliant Kiton Red B is very suitable either for the dyeing of wool in the form of yarn or piece goods. It does not stain cotton yarn. It will also be found valuable in the dyeing of compound shades.

Recipe No. 24.

Blue on Cotton Yarn.

Oxamine Dark Blue B G E on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Oxamine Dark Blue B G E.
(Badische Company, 128 Duane St., New York.)
20 lbs. Glauber's Salt.

Enter at 180° F. and dye at a boil for one hour.

Oxamine Dark Blue B G E will be found to be a valuable dyestuff for all kinds of cotton dyeing, and particularly so in the case of raw stock.

Recipe No. 25.

Green on Worsted Yarn.

Compound Shade on 100 lbs. worsted yarn. Prepare the dye bath with

1 lb. Meta Chrome Blue G 276 Powder.
2 lbs. Chrome Fast Yellow R Powder.
(Berlin Aniline Works, 213 Water St., New York.)
3 lbs. Meta Chrome Mordant.

Enter at 160° F., raise slowly to a boil and boil for two hours.

The compound shade produced in this way will be found to dye level in one bath and possess excellent fastness.

Recipe No. 26.

Blue on Cotton Yarn.

Naphtogene Blue 6 R on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Naphtogene Blue 6 R.
(Berlin Aniline Works, 213 Water St., New York.)
20 lbs. Glauber's Salt (Calcined)
1 lb. Soda Ash.

Dye at a boil for one hour. Rinse, and then diazotize by working for 1/2 hour in a cold bath made up with

3 lbs. Sodium Nitrite.
8 lbs. Sulphuric Acid, 168° Tw.

Then rinse, and work 1/2 hour in a cold bath made up with

1¼ lbs. Beta Naphthol,

dissolved with

1¼ lbs. Caustic Soda Lye, 76° Tw.

Naphtogene Blue 6 R possesses excellent fastness to light, very good fastness to washing, and good fastness to acids, alkalies, calendering and rubbing.

Recipe No. 27.

Brown on Cotton Yarn.

Thiogene Gold Brown O G Conc. on 100 lbs. cotton yarn. Prepare the dye bath with

First Bath.

10 lbs. Thiogene Gold Brown O G. Conc.
(H. A. Metz & Co., 122 Hudson St., New York.)
30 lbs. Sodium Sulphide (Crystals).
5 lbs. Soda Ash.
50 lbs. Common Salt.

Standing Bath.

6 lbs. Thiogene Gold Brown O G Conc.
(H. A. Metz & Co., 122 Hudson St., New York.)
18 lbs. Sodium Sulphide (Crystals).
1 lb. Soda Ash.
5 lbs. Common Salt.

Dye as usual for sulphur colors, just below the boil and with material under the surface of the liquor as much as possible.

Thiogene Gold Brown O G Conc. is a new sulphur color suitable for all kinds of cotton goods. If extraordinary fastness is desired, the dyeings may be aftertreated with copper sulphate.

Recipe No. 28.

Blue on Worsted Yarn.

Fast Acid Blue A on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Fast Acid Blue A.
(F. E. Atteaux & Co., 176 Purchase St., New York.)
4 lbs. Sulphuric Acid.

Enter at 160° F. and dye at a boil for one hour.

No Glauber's Salt is used in its application.

Fast Acid Blue A is especially interesting as a shading color as it dyes at a boil very evenly on piece goods.

Recipe No. 29.

Brown on Cotton Yarn.

Oxamine Dark Brown G on 100 lbs. cotton yarn. Prepare the dye bath with

5 lbs. Oxamine Dark Brown G.
(Badische Company, 128 Duane St., New York.)
20 lbs. Glauber's Salt.

Enter at 180° F. and dye at a boil for one hour.

Oxamine Dark Brown G will be found an excellent brown for use as a self color, and also in the dyeing of union material, and when dyed at a boil dyes cotton and wool equally well.

Recipe No. 30.

Orange Brown on Cotton Yarn.

Diamine Fast Brown G on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Diamine Fast Brown G.
(Cassella Color Co., 182 Front St., New York.)
1½ lbs. Soda Ash.
25 lbs. Common Salt.

Enter at 180° F. and dye at a boil for one hour.

Diamine Fast Brown G possesses very good fastness to light, chlorine, stoving and acids.

Recipe No. 31.

Blue on Worsted Yarn.

Alphanol Blue B R Extra on 100 lbs. worsted yarn. Prepare the dye bath with

4 lbs. Alphanol Blue B R Extra.
(Cassella Color Co., 182 Front St., New York.)
10 lbs. Glauber's Salt.
5 lbs. Acetic Acid.

Enter yarn at 105° F., raise to a boil in 1/2 hour, and then boil for one hour, finally adding a little acetic acid, if necessary, to exhaust the dye bath.

Alphanol Blue B R Extra dyes very evenly and produces an excellent shade of blue which will be particularly desirable for dyeing dress goods and serges.

Recipe No. 32.

Scarlet on Cotton Yarn.

Tetrazo Chlorine Scarlet 3 B on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Tetrazo Chlorine Scarlet 3 B.
(American Dyewood Co., 154 William St., New York.)
30 lbs. Common Salt.
½ lb. Soda Ash.

Enter at 180° F. and dye at a boil for one hour.

Tetrazo Chlorine Scarlet 3 B possesses good fastness to light, acids and washing. It is especially adapted for union dyeing, giving very bright shades. The wool is colored somewhat heavier than the cotton. This dyestuff is also of especial interest for the dyeing of artificial silk.

Correction.

Recipe No. 161 for Black on Cotton Yarn in our November, 1907 issue, contained an error. The Katigen Black T Extra Conc. is a product of the Farbenfabriken of Elberfeld Co., 66 Lafayette St., New York, and not of the company named in the recipe.

Color Cards.

Diamine Fast Brown G and R pat.; Cassella Color Co., New York.

Card showing four samples yarn, four samples cotton cloth and two samples raw material dyed with different percentages of Diamine Fast Brown G and R. They may be employed to advantage in every branch of cotton dyeing and are likewise of importance for half wool and half silk dyeing; they dye the cotton part principally, and go only to a small degree on to the animal fiber.

Immedial Brilliant Green G Extra pat.; Cassella Color Co., New York.

Six samples of yarn, cotton cloth and loose cotton dyed with different percentages of Immedial Brilliant Green G Extra, for which complete dyeing directions are given.

Algole Red B Paste; Farbenfabriken, New York.

Folder showing two samples of yarn dyed with Algole Red B Paste, for which full working directions are given.

Black for Half Wool N; Farbenfabriken, New York.

Card No. 1402 containing two samples of half woolen goods showing different percentages of Black for Half Wool N.

Pluto Milling Black B; Farbenfabriken, New York.

This card shows three shades on half wool goods, in which the cotton is first dyed in the milling liquor and the pieces then top dyed.

Katigen Yellow Brown O; Farbenfabriken of Elberfeld Co., New York City.

A sample of cotton yarn showing an 8 per cent. dyeing of Katigen Yellow Brown O, which is especially adapted for the production of tan, bronze and brown shades.

Katigen Deep Black B; Farbenfabriken of Elberfeld Co., New York City.

Two samples of cotton yarn showing a 2 per cent. and a 7 1/2 per cent. dyeing of Katigen Deep Black B. This color is particularly well adapted for the dyeing of cops and cheeses in machines. THIS and folowing, Dec. 16.

Black on Half-Silk Material; Cassella Color Co., New York.

Four samples of half-silk goods dyed with Immedial Black AZ, and Immedial Black BZ, for which full working directions are given.

Naphtogene Blue B; Berlin Aniline Works, New York.

Card containing sample of cotton yarn and cotton cloth showing the excellent results obtained by using Naphtogene Blue B.

Acid Chrome Blue B R and 2 R; Farbenfabriken of Elberfeld Co., New York.

Three samples of worsted yarn and slubbing dyed with Acid Chrome Blue B R and 2 R which has excellent fastness to dyeing and steaming.

Katigen Indigo 2 R L Extra; Farbenfabriken of Elberfeld Co., New York.

Folder containing two samples of cotton yarn showing results obtained by dyeing with 10 per cent. Katigen Indigo 2 R L Extra.

Diamine Bengal Blue G and R; Cassella Color Co., New York.

Folder containing eight samples of cotton yarn, piece goods and loose cotton, dyed with Diamine Bengal Blue G and R, which have excellent fastness to light, washing and acids.

Naphtol Dark Green G; Cassella Color Co., New York.

Card containing samples of woolen yarn and cloth showing results obtained by dyeing with Naphtol Dark Green G.

Colors on Woolen Yarn; Farbenfabriken of Elberfeld Co., New York.

A bound book containing samples of woolen yarn dyed with acid wool, basic, alkali, benzidine, sulphon, alizarine and mordant colors, and giving full directions for dyeing.

Benzidine Colors on Cotton Piece Goods; Farbenfabriken of Elberfeld Co., New York.

A bound book containing samples of cotton piece goods dyed with Benzidine colors.

New Dyestuff Firm.

Birger G. A. Rosentwist and Otto A. Gorner announce that they have formed a partnership for the purpose of carrying on a general business in dyestuffs and chemicals under the firm name of Rosentwist & Gorner, at 26 India Square, Boston, Mass.

Mill News.

Those interested in receiving early and more complete investigated information of projected new mills, enlargements, improvements, fires facts and gossip of the trade are referred to the Textile Advance News, issued weekly by the publishers of the Textile World Record, at $15.00 per year.

COTTON.

New Mills.

*Alabama, Childersburg. The machinery equipment of the Coosa River Spinning Co. will not be installed until July or August. Manufacturing will commence during September. 10,000 spindles will be operated on medium yarns. D. L. Lewis, Sycamore, Ala., is pres., M. B. Lewis, treas., P. B. Workman, agent, and J. J. Chappell, supt. A. DeCort, Boston, is selling agent. They would like information on time recorders, hydraulic presses, balling machines and supplies.

*Alabama, Munford. Work on the new building for the Munford Cotton Mills, reported incorporated in September with capital stock of $50,000 is going forward. The main building will be one story, 77 by 155 feet. This will be a 3,000 spindle plant and will manufacture 14s to 26s hosiery yarns.

*Canada, Montreal. The buildings to be used by the Mt. Royal Spinning Co. Ltd. on which work was started in May, are practically completed. They consist of a two story office building 80 by 45 ft.; a store house 200 by 80 ft.; preparing and pick-mill 134 by 48 ft., three stories high; and the main mill 312 by 134 ft., five stories high. 26,880 mule spindles, 18,068 ring spindles, and 1200 looms will be set up and run as soon as possible. The Mt. Royal Spinning Co. has capital stock of $3,000,000. Wm. C. McIntyre is pres.; W. S. Barker, sec'y and treas.; and W. T. Whitehead, general manager.

*Connecticut, Kannapolis. The work of building and equipping the new plants for the Paterson and Cannon Mills is going forward and both mills will commence operation at an early date. The Paterson Mill will have 20,000 spindles and 600 looms. The Cannon Mill will have 30,000 spindles and 900 looms. The Paterson Mfg. Company of China Grove, N. C, and the Cannon Mfg. Company of Concord, N. C., are the owners. J. W. Cannon is president of both companies, Stewart W. Cramer of Charlotte is the engineer in charge of construction work and installing machinery.

*Georgia, Tallapoosa. The Tallapoosa Mills expect to begin manufacturing May 1. As previously reported, the buildings, with a capacity of 12,500 spindles, have just been completed and 10,000 spindles are now being installed. The company has capital stock of $200,000. A. L. Jackson is president, treasurer and buyer, and C. E. Pearce is superintendent. 20s yarn will be the chief product. The selling agent has not been selected.

*North Carolina, Davidson. The Delburg Cotton Mills, incorporated with authorized capital stock of $100,000 in July, of which $50,000 has been taken up, will issue more stock not to exceed $50,000. This was decided at a meeting of the stockholders on January 14. Good progress has been made toward the completion of the plant and preparations are being made now to install automatic fire extinguishers. The plant will be driven and lighted by electricity and the houses for the operatives are also being wired. The Delburg Cotton Mills will operate 2,500 spindles on 12s to 20s cotton yarns.

*North Carolina, East Monbo. The Stockholders in the Turner Mills Co., reported incorporated in August, have increased the paid in capital from $125,000 to $150,000. Preliminary work for the erection of the proposed plant is going forward. The concrete dam being built to develop water power is about three-fifths completed. Bricks are being manufactured for the various buildings and work is going forward on the foundations. The plant will have 7,600 spindles and is expected to be ready for manufacturing by October. W. B. Turner is president, C. M. Steele vice-president, E. G. Gaither treasurer, all of Statesville, N. C. W. A. Calvin, of Marion, is secretary.

*North Carolina, Kinston. It is definitely reported that construction work will commence on the Caswell Cotton Mills, Inc., March 1, and that it is planned to start manufacturing Nov. 1, 1908. Soft hosiery yarns 20s to 24s will be the product. The initial equipment will be 5,700 spindles, which will be increased probably to 15,000 spindles. This company has authorized capital stock of $200,000. J. E. Hood is president; F. C. Dunn, treasurer; J. W. Black, vice-president and general manager; and W. D. Laroque, Jr., secretary. All the officers confer in buying. Machinery contracts have been awarded.

North Carolina, Lenoir. Construction work is progressing on the building for the Moore Cotton Mill Co. As previously reported, the company has capital stock of $100,000 and will operate 5,000 spindles on 40s to 60s cotton yarns.

North Carolina, Marion. The James Mfg. Co. has been incorporated with capital stock of $100,000 by J. L. & W. J. McKay of Kings Mountain, N. C. and E. L. McKeon of Guthrie, Okla. It is understood that a cotton mill will be erected, although no details have been given out.

*North Carolina, Mocksville. Organization for the proposed Mocksville Cotton Mills has not been completed. We reported in September that $40,000 has been subscribed toward a $75,000 company and that the prospects were that the entire amount would shortly be subscribed and a charter secured. It cannot be stated when this organization will be completed. A. M. McGlanery, mayor of Mocksville, is prominently identified with the project.

*North Carolina Rockwell. Construction work started Oct. 15, 1907, on the plant for the new Barringer Mfg. Co., which was incorporated in

August, and it is stated that manufacturing will commence within 12 months from the time construction work begun. 2/30 yarn will be the sole product at first, but other counts will be spun later and weaving machinery added. The Barringer Mfg. Co. has capital stock of $150,000. Paul Barringer (P. O. Mt. Pleasant, N. C.) is president; James M. Halshouser is treasurer. The initial equipment will consist of 5,000 spindles.

*North Carolina, Weldon. The Shaw Cotton Mills, Inc. have awarded contract for the erection of buildings to H. L. Driscoll of Roanoke Rapids, N. C. The proposed building will be a brick structure, 2 stories high, 50 by 150 ft., and as previously reported will be equipped with 5129 spindles to manufacture 20s to 30s cotton warps. A gas engine and producer will comprise the power plant. Preparations have been made to start construction work Feb. 1.

*Pennsylvania, Philadelphia. The new thread company, which we have reported as about to apply for a charter with a capital stock of $10,000, will be known as the Philadelphia Thread Company, Inc., and not the McKinley Thread Company. Manufacturing will commence about March 1 at 117 No. Orianna St. P. H. McKinley is manager with office at 240 Chestnut St.

Pennsylvania, Wilkesbarre. The De Luxe Textile Co. has succeeded to the business of the Star Lace Co. The officers of the new company are Arthur Clifford, pres.; Geo. Woodall, sec. and treas., and Alfred Clifford, who was supt. for the Star Co., manager and buyer. The plant will be started in full within a short time on laces and veilings with 6 looms, using 2/50s to 2/180s cotton yarns. Product is bleached and finished and sold direct.

*Rhode Island, Providence. The Rub Dry Towel Company reported last week as securing charter with a capital stock of $100,000 will commence the manufacture of Rub Dry towels in this city about March 1. (This line was formerly manufactured in the Wachusett Mills, Worcester, Mass., which, as reported, in October have been leased to H. Hodgson, pres. and treas. of the Greenwood Mills, Passaic, N. J., who intends moving his plant to that city.) A plant will be equipped as early as possible with up-to-date appliances. The product will be sold direct. Horace A. Kimball is pres., and H. Earl Kimball, treas.

*South Carolina, Blacksburg. The main building for the Blacksburg Mills, reported incorporated with capital stock of $25,000, will be 128 by 200 ft., of slow-burning construction, and will cost about $50,000. It is estimated that the machinery equipment will cost $125,000. G. Lang Anderson, Winston, S. C., will be president, and is in charge.

South Carolina, Piedmont. Allison A. Smith, president of the South Carolina Cotton Manufacturers' Association, will appoint a committee of five to prepare plans for the organization of a company to build a cotton waste mill in this section. This project will not interfere with the organization of the Carolina Waste Mill, which we reported incorporated in December. Rather the idea is that the Piedmont mill will prepare waste to be manufactured into finished products at the Charleston plant.

Enlargements and Improvements.

*Canada, Nova Scotia, Yarmouth. The new mill erected for the Cosmos Cotton Co. has been completed and machinery is being received. Engines which will give 800 horse-power are being installed. The Cosmos Cotton Co. manufactures cotton duck, dress goods and twines. It has capital stock of $600,000. G. E. C. Burton is treasurer and buyer.

Connecticut, Bridgeport. Max Pollack, mercerized thread and spool cotton manufacturer, of Willimantic, is installing machinery in the Eames Bldg. Mr. Johl will be manager and states that he expects to give employment to about 30 hands in a few days.

Connecticut, Westport. The Lees Mfg. Co. is installing new machinery. Cords, twines, wicks and yarns are manufactured on 5,000 spindles, 250 braiders. Robt. T. Lees is president; James E. Lees, treasurer and buyer, and John A. Lees, secretary and agent.

Connecticut, Willimantic. The Windham Mfg. Co. has just completed installing 8 new spinning frames.

*Massachusetts, Adams. The Renfrew Mfg. Co. has awarded contract for a structure 20 by 40 ft. which will connect the weave room and finishing department. The added space will be used for cloth inspection. As previously reported, an addition is being built to the dye house of this company.

Massachusetts, Fall River. The Barnard Mfg. Co. are installing additional humidifiers which were ordered of the American Moistening Company.

*Massachusetts, Great Barrington. The Edgemere Mfg. Co. advises that machinery equipment will probably be increased, utilizing the space in the building previously reported as being purchased by them from the Great Barrington Canning Co. The company has capital stock of $25,000 and operates 64 broad and 32 narrow looms on marseilles and crochet quilts, turkish towels and similar goods. J. M. O'Brien is supt. and buyer and W. N. Greenwood, is pres.

*Massachusetts, Winchendon. N. D. White & Sons, whom we reported as having plans prepared for a new mill and who later decided to postpone construction work, advise us that it is their purpose to go ahead again. The building is to be 304 by 54 feet, 2 stories high and of modern construction. The grounds are now being graded outside the building lines and construction work is being done on the sluice way, underneath the proposed building, which is of granite, 125 feet long, 16 feet wide and 12 feet deep. The new building, when finished, will contain 244 looms, cloth room and machine shop. The present mill building will be used as a yarn mill. When improvements are completed, the whole plant will be thoroughly up-to-date in every respect.

*New Jersey, New Brunswick. In addition to the 3-story enlargement being built to the plant of Johnson & Johnson, which we reported previously, a 75 by 128 foot brick structure to be used as a power house is being erected. The additions

to this company will include 10,000 ring spindles and 250 looms to be producing by June 1. All types of surgeon's cloths are manufactured. Steam and electric power are used. R. W. Johnson is pres., C. W. McCormick, treas., and W. H. Hobbs, supt. The product is sold direct.

New York, Le Roy. The Le Roy Cotton Mills, a new mill started a year ago, held its annual meeting and decided to make an extensive addition by erecting a building 100 by 40 ft. The building formerly owned by the American Malting Co. has been purchased and will be torn down to give space for the proposed addition. At present 10,000 spindles are operated on black and white twist yarns. Myron C. Taylor is pres.; P. T. Jackson, Jr., treas.; and Manning Emery, Jr., agent. The Le Roy Cotton Mills have capital stock of $450,000.

*North Carolina, Davidson. The Southern Power Co. is prepared to supply electricity to local plants and the Linden Cotton Mills will be changed over to electric power by Feb. 1. In September we reported that this change would be made.

North Carolina, Fayetteville. The plans have been completed and part of the equipment installed for changing the Holt-Morgan Mills, the Holt-Williamson Mfg. Co., and the Lake View Mills over to electric drives. Contracts have been awarded to the General Electric Co., Schenectady, N. Y. Contracts have also been made with the Cape Fear Power Co. for electricity.

North Carolina, Greensboro. The preferred stock of the Pomona Mfg. Co. has been increased from $100,000 to $200,000. Lee H. Battle is president, treasurer and buyer. 19,000 ring spindles and 30 looms are operated on sheetings and drills.

*North Carolina, Kinston. The Kinston Cotton Mills have practically completed additions to hold 8,000 new spindles, 5,000 of which are being installed now. The new structures are 45 by 75 ft. and 80 by 114 ft., 2 stories high. When all the new machinery is installed, the company will have a total of 20,000 spindles operating on cotton yarns. The capital stock was recently increased from $100,000 to $140,000. The 3,000 additional spindles for which space is provided will be added during the year.

*North Carolina, Long Island. At the annual meeting of the Long Island Cotton Mills, it was decided to postpone the call for the $150,000 of increased capital which we reported some time ago was decided upon. The erection of the proposed 10,000 spindle yarn mill and water power electric plant at Buffalo Shoals will also be postponed. A new addition to the original plant has just been completed and 3000 spindles have been ordered.

*North Carolina, Lowell. No. 2 Mill for the Lowell Cotton Mill, on which we reported construction work as beginning in June, is completed and machinery is now being installed. Its equipment will consist of 15,000 spindles and will manufacture fine yarns.

*North Carolina, Morganton. The Alpine Cotton Mills are making preparations for the proposed 75 foot addition to the present plant and machinery equipment. J. E. Erwin is secretary, treasurer and buyer. The company has a capital stock of $150,000. At present 11,000 ring spindles are operated on coarse cotton yarns.

Pennsylvania, Philadelphia. Sibson & Stern, Inc., have increased their capital stock from $50,000 to $100,000. The capital stock has all been subscribed and paid into the treasury. 30 lace machines are operated on lace trimmings for underwear and doubtless this number will be increased shortly. Harry L. Stern is treasurer and buyer.

*Rhode Island, Woonsocket. The new mill for the Lawton Spinning Co. is assuming shape. The first story is practically completed, which finishes the card room, picker room, and store house. It is expected that construction work will be completed by March 1st. Machinery contracts have been awarded.

South Carolina, Clifton. The Clifton Mfg. Company is to increase its humidifying equipment and has placed a repeat order with the American Moistening Company.

WOOLEN.

New Mills.

*Massachusetts, Lowell. The first installment of looms for the Lyon Carpet Co. is expected by March 1, and they will be put in operation immediately. Workmen are arranging the power connections with the Amraytoon Paper Tube Co., which will supply power to the new concern.

*Minnesota, St. Cloud. The St. Cloud Woolen Mill, Inc., will begin the manufacture of knitting yarns, heavy flannels for the western trade, and blankets, during April. The company has capital stock of $10,000 and will operate 2 sets of cards and 2 broad looms. C. J. Meteroth is president, E. F. Moore, treasurer, and John McElroy, superintendent. The product is dyed and sold direct. We reported the projection of this industy in April. Frank Mattock of Pillsbury, promoted the organization.

*Norfh Carolina, Winston-Salem. Machinery is being set up in the new mill for the Chatham Mfg. Co., and some of it will be in operation next week. Fine woolen blankets will be manufactured.

Pennsylvania, Philadelphia. The Overbrook Carpet Co., which was recently incorporated with a capital of $150,000, located in the Dunlap Mills at 56th and Lancaster Avenue, has for its officers Thomas Crompton, president, and A. G. Fromuth, treasurer and manager. The plant is equipped with 149 velvet and tapestry carpet looms and 33 axminster looms, which are run on velvet, tapestry and axminster carpets and rugs, the production being sold through Arnold Constable & Co., N. Y. The plant which is run by both steam and electricity also contains a dye house in which they are doing their own dyeing. Frank Gledhill is the buyer for the establishment.

*Rhode Island, Providence. An addition 68 by 75 ft. will be built to the original Chase plant for the Colored Worsted Mill. This will give a main building 100 by 68 ft., with an addition 68 by 75 ft.

Some of the machinery for the Colored Worsted Mill will be taken from the plant of the British Hosiery Co. at Thornton as that company intends to devote all its space to knitting. The Colored Worsted Mill is incorporated for $50,000. Jos. Lister of the Centerdale Worsted Mills is president and treasurer.

Enlargements and Improvements.

*Connecticut, Central Village. The Central Worsted Co. has filed certificate of increase of capital stock from $50,000 to $75,000. In October plans were prepared for a large addition to the plant and construction work will commence in the spring. Worsteds and cotton worsteds are manufactured on 30 looms. Geo. S. Mawhinney is president and Chas. Bragg is treasurer, agent, and superintendent.

*Connecticut, Norwich. The new mill of the Preston Woolen Co., built to replace the building destroyed by fire last August, has been completed at a cost of $18,000. Machinery is being set up and the plant will start manufacturing next week.

Connecticut, Winnipauk. A new engine is being installed by the Norwalk Mills Co. The plant will resume operations and full time when the new engine is set up. Overcloakings and coatings are manufactured on 14 sets and 57 broad looms.

*Illinois, Lacon. 24 looms and 6 sets of cards have been installed and are being operated in the addition to the Lacon Woolen Mills, on which we reported construction work as commencing in April. The addition is of concrete construction and makes the plant thoroughly up-to-date, with facilities for handling their increasing business.

*Maine, Sanford. It has been decided to add another story to the addition being built for the Goodall Worsted Co., making a four-story building, 60 by 134 ft. As previously reported, worsted spinning machinery will form the equipment.

Massachusetts, Athol. When the work of rebuilding W. H. Kauffman's satinet and blanket mill, recently destroyed by fire, is completed, the structure will be 31 by 100 feet, with an ell 21 by 28 feet. Mr. Kauffman expects to resume manufacturing in February. New carding and spinning machinery will be needed.

Massachusetts, Clinton. The new weave mill of the Bigelow Carpet Co., built from the plans of Chas. T. Main, Boston, is nearly completed and ready for the installation of machinery. It is five stories in height, 327 by 89 ft. in ground plan, is of brick construction, with concrete foundation. It will be electrically driven throughout. An unusual feature is the third-story weave room, which is 18 ft. high, with 26 and 31-ft. spans.

*Massachusetts, Hubbardston. The Hygienic Blanket Co. will resume manufacturing Feb. 10. A new boiler has been installed and repairs are nearly completed. We reported some time ago the wrecking of this plant by the explosion of the boiler.

Massachusetts, Lawrence. The new dye house of the Washington Mills (controlled by the American Woolen Co.), is completed and the installation of machinery has begun. This building, from the plans of Charles T. Main, mill engineer and architect, Boston, consists of a main structure 530 by 111 ft., with a one-story brick ell measuring 103 by 20. The main building is of basement and one story, except a small portion which is carried up to two stories in height. The basement floor is of reinforced concrete, the first floor of hard pine timber, spruce plank and oak top.

Massachusetts, Lowell. The Bigelow Carpet Co. has awarded contract for the erection of a new mill and it is expected that work will begin next week. The structure will be 204 feet long, 100 feet wide, and 5 stories high.

Massachusetts, Lowell. New machinery is being installed in the Middlesex Co. plant and extensive improvements made.

*Massachusetts, Monson. A new washer is being installed in the Ellis Mill No. 2 and an additional set of cards, which we reported would be installed, have been set up.

Massachusetts, North Adams. Machinery is being installed in the new dye house erected for Waterhouse & Howard. 2,000 worsted spindles also are being installed.

*Massachusetts, Saxonville. The addition to the Saxonville Mill, which we reported last October would be built, will be a 3-story structure, 300 by 57 feet. Robert Dawson is agent and buyer.

Massachusetts, Worcester. M. J. Whittall, manufacturer of plush and brussels carpets on 230 looms, is reported as preparing to build a 6,000 ton coal pocket of reinforced concrete.

*Massachusetts, Worcester. The work of moving the Greenwood Mills from Passaic, N. J., to the plant formerly occupied by the Wachusett Co., has been completed. A number of new looms will be added to the equipment of 100 looms which were run in Passaic. Mohair cloths and linings are the product. Mr. H. Hodgson is president and treasurer.

*Missouri, Sedalia. Arrangements are being made to rebuild the Sedalia Woolen Mills Co. at once on a larger scale. Contracts for new machinery will be given out as early as possible. Before the fire, two sets and 6 looms were operated on cassimeres, flannels and dress goods. F. F. Hugerman is manager and buyer.

New Hampshire, Ashuelot. The Sheridan Woolen Mills, Hugh Sheridan, proprietor, are installing six Knowles looms to replace the same number of Crompton looms of old pattern. This concern has made a number of improvements in the past few months.

New Hampshire, East Rochester. The Cocheco Woolen Mfg. Co. is installing a new set of cards. Business is reported as very satisfactory and the mill is running full time. 18 sets and 120 broad looms are operated on broadcloths, uniform cloths, suitings, etc. Samuel Rindge is treasurer and buyer. The company has a capital stock of $150,000.

Rhode Island, Woonsocket. According to re-

ports the River Spinning Co. is to add a department for weaving men's wear worsteds. It is also stated that Mr. Tucker, formerly with the Greenville Worsted Co., will be engaged as manager of the new department. The River Spinning Co. manufactures woolen and merino yarns on 16 sets and 17,000 spindles. Byron L. Waterman is treasurer and Louis A. Anderson agent and superintendent.

Rhode Island, Woonsocket. It is reported that the Lowland Worsted Co., formerly known as the Loridan Worsted Co., contemplates the erection of a new mill. Judge Ambrose Feeley, treasurer of the concern, will retire from the office of judge of the 12th District Court on Jan. 31, and devote all his time to the manufacturing concern. The Lowland Worsted Co. has capital stock of $100,000, and operates 4,000 spindles on French spun worsted yarns.

Mills Starting Up.

Canada, Ontario. Pembroke. J. Gareau has rented the Pembroke Woolen Mills and will start up a plant March 1.

Massachusetts, North Oxford. The mills of the Thayer Woolen Co. have started up full time after a shut down of three weeks. Plants are operated at Killingly, Conn., North Oxford and Worcester, Mass.

*Massachusetts, Saxonville. The Saxonville Mill has resumed operations after a shutdown extending since Thanksgiving. 500 operatives are employed.

*New York, Amsterdam. The carpet and rug plant of Shuttleworth Bros. has resumed operations after a shut-down lasting since November.

Rhode Island, Bristol. The Cranston Worsted Mills have resumed operations on full time and no further shut down is contemplated. Worsted mohair and novelty yarns are manufactured on 10 worsted cards and 10 combs. The product is sold direct.

Mills Shutting Down.

Maine, South Windham. The Robinson Mills have shut down indefinitely owing to dullness in their line. Broadcloths, kerseys and ladies' dress goods are manufactured on 4 sets and 46 looms.

*Massachusetts, Lowell. The local plant of the Merrimack Woolen Co. has shut down owing to a weavers' strike and the stock removed to the plant at Tilton, N. H.

Massachusetts, Rutland. The satinet mill of A. C. Moulton has shut down indefinitely. 3 sets and 48 narrow looms were operated.

Rhode Island, Westerly. The only local plant seriously affected by present market conditions is the Westerly Woolen Co. which has shut down for several weeks. They make woolen and worsted on 20 sets and 100 broad looms.

SILK.

New Mills.

*New Jersey, Paterson. Information as to the location of the new plant of the Petersburg Silk Co. has not been given out. The choice lies between Scranton, Pa., and this place. This company was reported as being incorporated with capital stock of $250,000 in December. Theodore Bachofen, 286 Summer St., is in charge.

*New York, Cortland. The Standard Silk Throwing Co., previously reported incorporated with capital stock of $125,000, is making preparations to start manufacturing. M. P. McTague, formerly of Scranton, is president and treasurer, and advises that employment will be given to 20 hands. The capital stock is $25,000 instead of $125,000 as previously reported.

New Jersey, Riverside. A new silk mill will be built here for Samuel J. Aronsohn, Frederick W. Wentworth is preparing the plans for an up-to-date plant, 382 by 59 ft. and 4 stories high. A site has been secured at 10th and York Sts. Sam'l J. Aronsohn is proprietor of the Granite Mill, Paterson.

MISCELLANEOUS.

Massachusetts, Andover. Smith & Dove Mfg. Co. are ready to install machinery in the new tow mill just completed. It is a continuation of the present finishing building, measures 327 feet by 62 feet, and is two stories in height, with basement. The first story will be devoted to preparing the jute and tow, and the second story to spinning, twisting and reeling. The building was designed and its construction superintended by Charles T. Main, mill engineer and architect, Boston.

Massachusetts, Lawrence. The Brush Hat Mfg. Co. will begin the manufacture of felt hats in the building on Allen St. formerly known as the old Globe Mills. Operations will start within a few weeks. This company is incorporated under the laws of Massachusetts. James J. Brainard, Pittsburg, Pa. is pres.; James W. Manning, Boston, vice-pres. and sec'y.; and Jarvis C. Brush, Newburg, N. Y., supt. and general manager.

*Massachusetts, Stoughton. The Chelsea Braiding Co. which we previously reported as buying the Wales French Factory, is installing new machinery and will move the original plant from Chelsea to this place early in the Spring. They will have 20 looms on narrow elastic and non-elastic webs for suspenders, garters and the dry goods trade. They will also have several broad looms for the manufacture of special widths of bandages used in the surgical line, and 50 braiders for the manufacture of elastic cord. The product will be sold direct. They buy cotton yarn from 60s to 4/14s, also silk and mercerized cotton.

*New Jersey, Paterson. The Globe Dye Works have been granted a charter with capital stock of $20,000. Margaret Thompson, William Thompson and John Thompson are the incorporators. The object is to carry on a business of dyeing silk, cotton and other material. Undoubtedly the new

building, which we reported some time ago would be erected at Paterson by William Thompson, formerly proprietor of the Globe Dye Works, of Paterson, is for this company.

New York, Auburn. Charles T. Main, mill engineer and architect of Boston, reports that the new jute mill of the Columbian Rope Co., built in accordance with his plans, is completed. It is a three story structure of 196,000 square feet total floor area, of heavy mill construction with brick walls. The ground floor is of plank laid in tar concrete, topped with maple. The other floors are of unusual thickness, being made up of 6-inch plank with 7/8-inch maple top. The basement and first story will be used for storage, the others for the manufacturing operations. Electric power will be employed for driving.

North Carolina, Tryon. The Pacolet Finishing Co. has been incorporated with capital stock of $125,000. J. F. Wilcox and others are the incorporators.

*Pennsylvania, Hazelton. A. J. Kummerer, whom we have previously reported as moving his bleach works from Hamburg, Pa., to this place, is now operating under the name of the Hazelton Bleachery. Plant consists of a 2-story brick building 200 by 40 ft., fitted up with the latest machinery for the bleaching of knit goods in the piece. The capacity is 4,000 lbs. per day.

Pennsylvania, Wilkesbarre. The Wyoming Yarn Co. has secured a building on River St., formerly used as a furniture factory and are installing machinery for mercerizing, dyeing, bleaching and combing yarns. The plant will be started within a few days. Geo. H. Craven, formerly of the Scranton Yarn Finishing Co. is connected with the new concern.

FAILURES AND SUSPENSIONS.

*Connecticut, South Coventry. A creditors' petition has been filed against the Washburn Silk Co. It is claimed that the company is insolvent. The petitioning creditors are Eugene A. Tracy, $29; Wm. C. Latimer, $380; and Samuel D. Hall, $200. The plant was closed in December for an indefinite period and is partially dismantled.

New Jersey, Paterson, The Ramsey & Gore Mfg. Co. has gone into voluntary bankruptcy, and Reuben Macfarlan, of the Dexter-Lambert Co., has been appointed receiver. In addition to the local plant the company operated a branch mill at Centredale, R. I. The assets are placed at $103,404, and the liabilities, $70,000. It is expected that difficulties will be settled presently and the company resume operations.

Pennsylvania, Chambersburg. William O. Appenzellar and Edward O. Smiley have recently been appointed receivers for the Chambersburg Woolen Co. The plant has been run on cloakings and dress fabrics, operating 5 sets and 30 broad looms. They dyed and finished the production and sold through New York. The stock on hand will be made up and sold.

South Carolina, Greenville. Hugenot Mills have been declared bankrupt and J. B. Burgard appointed receiver. The mills' indebtedness is placed at $150,000, which is about the value of the plant. The company has a capital stock of $125,000 and operated 6,000 ring spindles and 304 wide looms on plaids and towels. R. L. Graham is pres. and treas., and G. R. Busbee, supt.

FIRES.

Connecticut, Eagleville. The Eagle Mill, John L. Ross & Son, props., suffered a loss of $500 by fire, fully covered by insurance. Fire occurred in the mule spinning room and seriously damaged some of the machinery.

Massachusetts, Holyoke. A small fire occurred in the Lyman Mill, No. 4, causing a damage estimated at about $100.

Michigan, Detroit. The local plant of the United Knitting Company of Cleveland, formerly known as Forrester & Cheney Company, has been destroyed by fire with loss estimated at $100,000. 300 knitting machines are operated on gloves and mittens, and employment given to 300 hands. Repairs will be made at once as a large number of orders must be filled.

New Jersey, Paterson. The silk mill owned and occupied by John Durle at 99 Water St. has been destroyed by fire, with loss estimated at $4,500, covered by insurance.

Pennsylvania, Philadelphia. The mills of William Ayres & Sons at Third and Cumberland Sts., manufacturers of horse blankets with 12 sets, 175 broad looms, have been damaged by fire to the extent of $10,000, the heaviest damage being in the warehouse and stables in the rear of the mill.

South Carolina, Cateeche. The warehouse of the Norris Cotton Mills Co. has been destroyed by fire, with a loss estimated at $40,000. The Norris Cotton Mills Co. has capital stock of $240,000 and operates 18,000 spindles and 452 broad looms on wide sheetings and 30s cotton yarn for the market.

Wisconsin, Milwaukee. The plant of the Wisconsin Knitting Works was damaged to the extent of $10,000 by fire. Knit shawls and fancy knit goods were manufactured on 12 latch needle and 10 flat knitting machines. Leopold Laev is treas. and buyer. The Wisconsin Knitting Works have capital stock of $30,000.

FACTS AND GOSSIP.

California, Los Angeles. Frank Wiggins, secretary of the Chamber of Commerce, announces that a $400,000 company is being organized to erect a cotton yarn and cloth mill. Dennis Howarth of Chester, Pa., is reported as at the head of the organization. It is stated that plans will be completed and a plant built and in operation within a year. 3 acres of ground have been secured and tentative plans for a main structure 500 by 190 feet are being considered. The promoters suggest that the coast market should be supplied by a large cotton mill in this locality at much lower rates than goods brought from the East at excessive transportation tariffs. The organization may develop during the present year.

Canada, Ontario, Almonte. The Anchor Knitting Co. has been purchased by Penman's Limited, Paris, Ont. The Anchor Knitting Co. had capital stock of $150,000 and operated 4 sets of woolen cards and 37 knitting machines on men's flat woolen underwear. The plant will be continued in operation.

Connecticut, Greenwich. G. A. Stafford & Co. have filed a certificate of incorporation. G. A. Stafford, M. B. Stafford and A. L. Douglas are the incorporators. The concern has capital stock of $100,000 and is authorized to manufacture cotton, silk and woolen goods.

Connecticut, Unionville. Chas. W. House & Sons, of New York, have purchased the Sunnyside Mill building and will equip a plant for the manufacture of felt goods. It is stated that operations will begin March 1.

*Georgia, Macon. As a result of the succession of J. P. Duckworth to the interests of J. F. Hanson, former president of the Bibb Mfg. Co., the following officers now control the company: W. T. Hanson, son of J. F. Hanson, has been elected president, and Hubert B. Duckworth, treasurer. The office of vice president has been abolished.

Georgia, Thomaston. A movement has been launched at this place to organize a company with a capital stock of $400,000 to establish a cotton mill. The names of the interested parties have not been given out.

Iowa, Cresco. F. A. Huber is interested in receiving information relative to the manufacture of cotton hosiery of medium grade. Mr. Huber contemplates starting a small hosiery plant.

Kentucky, Covington. The Reliance Textile and Dye Works advises that the tract of land bought by them contains 14 acres and is at Lockland, Ohio, not at Lockland, Ky., as previously reported. The site is 10 miles from Cincinnati on the Miami and Erie Canal and Big Four R. R. Nothing will be done immediately toward improving the land, but it is expected that ultimately a new plant will be erected.

Maine, Houlton. The capital stock of the Houlton Woolen Mill has been increased from $35,000 to $100,000. It is not announced whether an enlargement is contemplated. At present 2 sets, 6 spring needle knitting machines and 4 broad looms are operated on yarns, woolens, stockinets, lumbermen's socks, sweaters and similar goods.

Maine, Lewiston. The Hill Mfg. Co. are making their third installation of humidifiers, putting in the American Moistening System.

*Louisiana, New Orleans. The Kohlmann Moss & Cotton Felt Mfg. Co., reported incorporated in December with capital stock of $15,000, takes over the business formerly conducted by Louis Kohlmann, producer of moss and vegetable hair, cotton, lint, felt, etc. The offices are at 1224 St. Thomas St.

*Massachusetts, Lawrence. The annual meeting of the stockholders of the Arlington Mills was held at the company's office in Boston. 51,602 of the 60,000 shares were represented and the entire board of officers was unanimously re-elected. The officers are as follows: Clerk, E. Eaton Pierce; treasurer, Franklin W. Hobbs; directors, George E. Bullard, Livingston Cushing, William F. Draper, Robert H. Gardiner, Franklin W. Hobbs, James R. Hooper, George E. Kunhardt, Charles W. Leonard, Richard S. Russell, George M. Whitin and William Whitman. At a subsequent meeting of the directors William Whitman was re-elected president.

Massachusetts, Lowell. Wm. S. Southworth, agent of the Massachusetts Mills and secretary of the Lowell Manufacturers' Association, announces that the cotton mills of Lowell will resume operations on a full time schedule of 58 hours a week the last week in February.

*Massachusetts, Lowell. The entire equipment of the Pickering Mfg. Co. has been placed in the hands of the Drew Machinery Agency, in Manchester, N. H., for sale. As we have previously reported, the land and buildings have been sold to John C. Meyer & Co., spool cotton and silk manufacturers of Jamaica Plain. The latter company is preparing to remove to Lowell and machinery must be gotten out of the way without delay.

*Massachusetts, North Brookfield. So far as anything definite can be stated about this company, it seems that the plant formerly operated by the Indian Orchard Flax Co. is to be started by the Oxford Linen Co.

*Massachusetts, North Adams. A Creditors' Committee, consisting of Chas. W. Jones, president of the New England National Bank, Daniel G. Wing, president of the First National Bank and Simeon C. Chase, treasurer of King Philip Mills, Fall River, has been formed to co-operate in the settlement of the financial difficulties of the Arnold Print Works and its allied concerns.

Massachusetts, Spencer. The Priscilla Woolen Co., which was granted a charter in November, with capital stock of $10,000, has increased its capital to $15,000. The plant is not yet in operation. A line of samples is being made.

Massachusetts, Worcester. If the Massachusetts Legislature grants permission for the construction of bridges across the street in this city, it is probable that the Crompton & Knowles Loom Works will erect a large additional plant. The company has purchased between 60,000 and 70,000 sq. ft. of

land suitable for a building and is desirous of connecting the proposed new plant with the present plant.

Mississippi, Jackson. Petitions from the Farmers' Union and the Southern Cotton Association will be presented to the State Legislature asking for an appropriation to establish a bagging factory in one of the State Penal Colonies.

*Montana, Helena. It is again reported by the Secretary of the Commercial Club that a woolen mill is being organized for this city. H. K. Terry of St. Paul is connected with the project. It is safe to say that nothing will materialize along this line at present.

*New Hampshire, Meredith. Manufacturing has been resumed by the reorganized Atlas Linen Corp. and additional machinery is being started up every week. The full equipment will be run as soon as possible.

New Jersey, Paterson. Jerry Smit has leased space in the Essex Mill, where an increase in machinery can be made.

New Jersey, Paterson. The local plant of Grimshaw Bros., located at 96 Dale St. and consisting of 535 looms operated on broad silks, handkerchiefs, tie silks, etc., has been sold to Messrs. Hoffmann & Peierls, who are reported as representing a syndicate of silk men. It is stated that the new owners will not operate the plant at present. Grimshaw Bros. operate a plant at Reading, Pa., which will not be effected by the transfer of the local plant.

*New York, Oswego. The Ontario Knitting Co. will be forced to seek new quarters on account of the appropriation of the property by the State of New York for the Barge Canal. It is assured that the plant will not leave this city.

Pennsylvania, Allentown. Lumley & Barrett have dissolved partnership. Edgar G. Lumley is now running the plant alone. 10 looms are operated on silk ribbons. Product is sold direct.

New York, Troy. It is reported that shirt and collar manufacturers of this city are talking over the advisability of organizing a company to erect and operate a large cotton mill, which will supply them with suitable fabrics.

North Carolina, Burlington. Northern interests are considering a project for establishing a hosiery dyeing and finishing plant in this city. The proposed industry, if started, will have a capacity of 15,000 dozen per day.

North Carolina, Charlotte. Plans have been formulated for the consolidation of the Dover Yarn Mills, Chadwick Mfg. Co., Calvine Mfg. Co., Hoskins Mills, Inc., and Louise Mills. The combined capital of these companies is $1,200,000 and total machinery equipment is 92,200 spindles and 2,160 looms. E. A. Smith is president of all the separate corporations and Arthur J. Draper is treasurer. Further particulars will probably be announced within a few days.

*North Carolina, Gastonia. The new building which has just been completed for the Arlington Cotton Mills will not be equipped with machinery for several months it is understood. There is space for several thousand spindles. 7,950 ring spindles and 6,000 twisting spindles are operated on fine cotton yarns. G. W. Ragan is pres., treas. and buyer.

*Pennsylvania, Allentown. It is reported that Mr. Gabriel, president of the Gabriel Hosiery Co., Coopersburg, Pa., is endeavoring to lease the plant of H. Gabriel's Sons, which we reported bankrupt.

Pennsylvania, Blandon. The Willow Creek Knitting Mills have not found a dull market for their goods and are running full time.

Pennsylvania, Norristown. The Snow Bleach and Dye Works, operated by Harry Hobensack, which has been shut down for some time, has been dismantled and the machinery is being offered for sale.

Pennsylvania, Philadelphia. By order of the trustee, James Henry, the knitting plant of Chas. Weber, bankrupt, located at 2014 Orleans St., will be sold out at public auction on January 9. At the time of its failure the plant contained 280 knitters and 20 sewing machines which were operated on women's and children's seamless cotton hosiery.

Pennsylvania, Philadelphia. On Monday, January 13, by order of the trustees, the waste and shoddy mill located at 1726 to 1730 N. Howard St., operated by J. Wesley Johnson, will be sold at public auction. The mill contains ravellers, pickers, willows, presses, stock, etc.

Pennsylvania, Philadelphia. O'Neill Bros., Inc., who recently purchased the plant of the Dunlap Carpet Co., bankrupts, at the S. W. corner of 56th St. and Lancaster Ave., have conveyed the same to the Overbrook Carpet Co. for a consideration of $100,000. The assessed valuation of the plant is $105,000. The Overbrook Carpet Co. has given the Excelsior Trust & Saving Fund Co. a mortgage on the property for $100,000.

*Pennsylvania, Reading. Jacob Bauer and Geo. W. Chapin, receivers for the Pennsylvania Knitting Mills of Reading, have been granted permission to operate the plant until April 1. At first the receivers were ordered to operate the plant for a few weeks to find whether it could be operated at a profit. The report of the receivers showed that the plant would be sacrificed if closed and the court has extended the authority of the receivers so as to permit them to buy material and keep the concern running.

Pennsylvania, Scranton. It is reported that the plant of the Scranton Yarn Finishing Co. will be dismantled and re-equipped as a silk throwing mill.

*Rhode Island, Alton. By attachment placed on the property of the Alton Mfg. Co., the mill machinery and other property will be sold on March 24, 1908, to satisfy the claims of creditors. It is understood that as soon as present difficulties are settled, reorganization will take place and the plant be started up.

Rhode Island, Hope Valley. The firm of Youngman & Hammond has been dissolved, Mr. Hammond buying Mr. Youngman's interest. The

local woolen mill will be operated under the firm name of Thos. H. Hammond. 56 looms are operated on fancy cassimeres, suitings, cloakings and skirtings. It is understood that the change will not affect the running of the plant.

*Rhode Island, Providence. The liabilities of the Whittle Dye Works are $132,196. The plant is the only asset. It is shown that during the last two years the plant has been operated at a loss of $68,594, although dividends aggregating $8,612 have been paid.

Rhode Island, Thornton. The plant of the Fitch Mfg. Co. is to be sold at auction on Feb. 5. The plant has been idle since October and it has been rumored several times that operations would be resumed. The mortgagee has foreclosed, however, and the proposed sale is the result. The Fitch Mfg. Co. has capital stock of $300,000. John A. Quinn is president, John F. McKeon, 260 W. Broadway, New York, treasurer, and J. P. Farrell, vice-president and manager.

*Rhode Island, Thornton. Geo. E. Boyden & Son have bought the interest of Fritz Achelis in the British Hosiery Co. It is stated that no change will take place in the name or management. We reported Dec. 20 that the British Hosiery Co. contemplated disposing of its worsted knitting machines. Nothing is said of this plan, but it is reported from Providence that the new Colored Worsted Mill has purchased this machinery.

Utah, Salt Lake City. The Cache Knitting Works, Inc., of Logan, have purchased the business and plant of the Ensign Knitting Co. The price is not announced. It is stated the Ensign Knitting Co. will be continued in business by the new owners. Hosiery, sweaters, golf jackets and general knit goods are manufactured.

*Vermont, Saxton's River. The Saxton's River Woolen Mill, owned by Louis Rittenberg of New York, whom we reported as bankrupt in December, will be sold at auction January 27. The plant includes 2 pickers, 6 sets of cards and 28 broad looms, equipped to manufacture cassimeres, overcoatings and similar goods.

*Wisconsin, La Crosse. As previously reported, the Star Knitting Co., a corporation with capital stock of $25,000, has taken over the business of the Star Knitting Co., a copartnership. The running of the plant will not be affected. A. S. Farnam is pres. and mgr.; Robert Calvert, vice pres., and C. J. Weber, sec.

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*New York, Gloversville. John E. Jones, whom we reported as purchasing the Fulton County Silk Mills, has since transferred the property to the Fulton County Silk Mills, Inc. The company has capital stock of $100,000. J. Ernest Jones is president, treasurer and buyer. 4 new knitting machines have been added. Silk linings for gloves are manufactured.

*New York, Oswego. Chas. W. Severson, previously reported as buying the controlling interest in the Oswego Knitting Company, advises us that the capital stock will be increased from $15,000 to $30,000, and improvements made doubling the capacity of the plant. At present about 50 spring and latch needle knitting machines and 80 sewing machines are operated on men's heavy ribbed Egyptian and colored balbriggans. C. W. Severson will be pres. and buyer when the concern is reorganized and a new superintendent will be engaged. The product is sold through J. J. Cook & Co.

*New York, Waterford. It has been decided to rebuild the Harmony Knitting Co.'s plant destroyed by fire in December. As previously reported, a temporary office has been opened with the Crystal Spring Water Co. on Division St.

Ohio, Bowling Green. The Monarch Underwear Co., manufacturers of spring needle men's union suits, are comtemplating building a new mill, having outgrown their present quarters.

Pennsylvania, Bechtelsville. The Kutz Knitting Mills has installed a large dynamo in its electric light plant.

*Pennsylvania, Coopersburg. The Gabriel Hosiery Co., Inc., has leased the building formerly used for the manufacture of carriages by Milton and Frank Jordan, and will install machinery for dyeing their product. Children's and infants' cotton hosiery is manufactured on 120 latch needle machines. M. S. Gabriel is president and buyer, Willis R. Jordan is treasurer, and R. A. Young, superintendent. The company has capital stock of $20,000.

Pennsylvania, Nanticoke. The Beaver Knitting Mills are erecting a new one-story frame building at 53 Prospect St., and expect to remove their plant into it about Feb. 15. The complete equipment of the new plant will consist of 16 knitting machines, 4 ribbers and 3 loopers, which will be operated on 144-needle cotton half hose. Product is sold through E. E. Hartzell and B. F. Browne, 346 Broadway, New York. 10s, 11s, and 2/40s carded peeler yarns on cones are bought. The new plant will be equipped with electric power. Geo. J. Davis & Sons are proprietors. J. M. Davis is supt. and buyer.

Pennsylvania, Philadelphia. The Ellis Hosiery Co., whose office is located at 533 Market St., and which is capitalized at $100,000, have recently increased the number of their knitters by an addition of 36 machines and are now operating 100 knitters on men's, women's seamless, and women's and children's ribbed hosiery of cotton, lisle and mercerized which they sell direct. The plant is also equipped with a dyeing, finishing and printing department. They buy 10s to 40s cotton yarn on cones. The mill is located in Vineland, N. J.

Pennsylvania, Philadelphia. The Melbourne Knitting Mills have removed from Mascher and Oxford Sts. to the Lomax Mills at Jasper and Orleans Sts., where they have greater facilities for turning out their line of hose and half hose. Henry Huschke is superintendent. The product is sold direct.

*Pennsylvania, Reading. Manufacturing will begin in the new mill erected for the Berkshire Knitting Mills on February 15.

Personals.

Albert G. Nason, who has been assistant treasurer for the Whitman Mills, New Bedford, Mass., has been elected treasurer of the corporation by the directors to fill the vacancy caused by the death of Wm. C. Taylor.

S. J. Wright, secretary of the H. L. Chase Bag Company, St. Louis, Mo., has resigned on account of failing health. He has been secretary for the past eleven years. The vacancy will be filled by H. L. Chase, now assistant secretary.

Chas. Collins, superintendent of the Methuen Mills, and John F. Shacketon of the Pemberton Mills, Lawrence, Mass., will attend to the duties formerly done by agent Lewis E. Barnes, as it is understood there will be no agent engaged for the present.

Rudolph Zeigler, overseer of spinning, skein winding and twisting at the French River Textile Company, Mechanicsville, Conn., has severed his connection with that company and returned to his home in Rockville, Conn.

Emil DeWitte has accepted the position as overseer of dyeing for H. T. Murdock & Company, Proctorsville, Vt. He comes from Pittsfield, Mass.

L. B. Schaefer, manufacturer of broad silks with mill at 194-198 Central Ave., N. J. Heights, N. J., died at his home in that city. He has been a manufacturer of silks for many years.

Arthur Butterworth, overseer of dyeing and finishing for the Lethbridge Woolen Company, Lethbridge, Alberta, Canada, has severed his connection with that company.

Geo. Garlick, overseer of carding at the Hebron Mfg. Company, Hebronville, Mass., has severed his connection with that company. The vacancy has been filled by Chas. Chenelle, formerly at the Lyman Mills, Holyoke, Mass.

A. H. Gulliver has accepted the agency of the Wyoming Spinning Company, Norristown, Pa. Mr. Gulliver was formerly employed in the office of the Ponemah Mills, Taftville, Conn.

Morris L. Chace has been appointed overseer of dressing, spooling and winding for the Arlington Mills, Lawrence, Mass. He was formerly employed at the Bristol Mills, New Bedford, Mass.

Arthur Smith has been appointed manager of the Rhode Island Lace Works and has taken charge of the plant at W. Barrington, R. I.

Thomas Pendergast has accepted the position as overseer of carding at the Intervale Mills Corporation, Webster, Mass.

Percy Palmer has accepted a position as superintendent for the Massasoit Mfg. Company, Oakdale, Conn.

Wm. Jas. Hogg, treasurer and superintendent of the Westboro Mills, Westboro, Mass., has severed his connection with that company and is succeeded by F. W. Taylor, formerly of the Dunlap Carpet Company, Philadelphia, Pa.

John Arnold, superintendent of the Racine Woolen Mills, Racine, Wis., has severed his connection with that company. He has held the position for the past six years and was well thought of by his fellow workers and the mill loses a first-class superintendent.

Wm. T. Lang, agent of the Brookside Mills, Knoxville, Tenn., has severed his connection with that company on account of ill health and returned to his home in England. L. H. Brown, superintendent, will act in Mr. Lang's place for the present.

J. A. Hinson has accepted a position as overseer of carding at the Chadwick Mills, Charlotte, N. C. He comes from Morrisville, N. C.

T. M. Robertson has been promoted to the position as overseer of carding at the Seminole Mfg. Company, Clearwater, S. C., to succeed L. C. Horne. W. B. Harwood, succeeds Mr. Robertson as second hand. He comes from Augusta, Ga.

T. S. Haskell has been appointed general manager and superintendent of the Belle Vue Cotton Mills, Newport, Tenn. He comes from Newry, S. C.

Chas. A. Cobbett has accepted a position as overseer of carding for the Dustin Island Woolen Mills, Penacook, N. H. He was formerly employed at Tilton, N. H.

Edward Pero has accepted a position as overseer of finishing for the Lethbridge Woolen Mill Company, Ltd., Lethbridge, Alta, Canada. He was formerly employed at St. John, Ore.

Michael Bresett has been appointed overseer of the weaving department at the Sayles & Jenks Mill, Warren, Mass., succeeding John Thomas, who resigned.

Ernest Lord, who formerly held the position as superintendent of the Huntington Mfg. Company, Huntington, Mass., has accepted a position with the Adams Woolen Company, Adams, Mass.

W. B. Briggers has accepted a position as overseer of weaving at the Gaston Mfg. Company, Gastonia, N. C.

R. T. Craft has accepted a position as second hand at the Bemis Cotton Mills, Bemis, Tenn. He comes from Chattahoochee, Ga.

John A. Drew, Supt., of the Neuse River Mills, Neuse, N. C., has resigned.

J. F. Capps, superintendent for the old mill at Roxboro, N. C., has been appointed superintendent of the new mill at this same place.

S. N. Wilkins has accepted a position as assistant overseer of weaving at the Eno Cotton Mills, Hillsboro, N. C. He comes from Danville, Va.

Louis Galle, superintendent of the De Surmont Mills, Woonsocket, R. I., has taken up his residence at Woonsocket and expects to enter his new duties as superintendent of the mill at an early date.

Benjamin F. Lister, assistant superintendent at the Centredale Worsted Mills, Centredale, R. I., has severed his connection with that company to take the position as secretary and general manager of the Colored Worsted Mills, Providence, R. I., which has recently been incorporated.

R. M. Ames has been appointed bookkeeper at the Pontoosuc Woolen Company, Pittsfield, Mass., to succeed the late Geo. Ernest Humphrey. Mr. Ames comes from Baltimore, Md.

Wm. A. Tucker, superintendent of the Greenville Woolen Company, Greenville, R. I., has been appointed superintendent of the River Spinning Company, Woonsocket, R. I. Mr. Tucker is to take the position made vacant by Louis A. Anderson.

Frederick C. Palmer, superintendent of the Palmer Mills, New London, Conn., has severed his connection with that company. Ralph H. Melcer has been appointed to fill the vacancy.

Albert Dracup has severed his connection as overseer of spinning at the No. 2 section of the No. 4 Mill of the Geo. H. Gilbert Mfg. Company, Gilbertville, Mass.

John C. Weeks has accepted a position as overseer of carding for the Wilton Woolen Company, Wilton, N. H. He was formerly employed at the Beaver Brook Woolen Mills, Collinsville, Mass.

C. B. Maxfield has severed his connection as overseer of finishing with the Kalamazoo Knitting Company, Milwaukee, Wis.

John A. Thomas, overseer of weaving at the Sayles & Jenks Woolen Mill, Warren, Mass., has severed his connection with that company.

Edward S. Wilkinson, assistant treasurer of the Arnold Print Works, North Adams, Mass., has severed his connection with that company.

B. E. Connell, formerly assistant superintendent for the Meriden Woolen Mills, Meriden, Conn., has accepted a similar position with the French River Textile Company, Mechanicsville, Conn.

Wm. Hamilton has accepted a position as engineer at the Washington Mills, Lawrence, Mass. He was formerly employed at the Methuen Cotton Mills, Methuen, Mass.

Jos. G. Flatery, overseer of finishing for the Hayward Mills, Franklin, Mass., has severed his connection with that company.

John Holt, overseer of the London shrinking department of the Dunn Worsted Mills, Woonsocket, R. I., has accepted a position at the Broad Brook Woolen Mills, Broad Brook, Conn. He is succeeded by Stanley Holt.

James E. Bolderson, color mixer for the Apponaug Company, Apponaug, R. I., has severed his connection with that company. He had been in their employ for the last three years, and will be succeeded by Mr. Blair from the Southbridge Printing Company, Southbridge, Mass.

Austin B. Boss, superintendent of the finishing department of the American Thread Company, Willimantic, Conn., has severed his connection with that company. C. J. Alpaugh succeeds Mr. Boss as superintendent.

Walter E. Parker, agent of the Pacific Mills, is being spoken of for delegate to the Republican National Convention. Mr. Parker was an alternate to the last Convention.

Morris L. Chase, formerly of Providence, has accepted the position as overseer of dressing, warping and slashing in the worsted department of the Arlington Mills, Lawrence.

John C. Needham, shipper for Brown & Whittier, manufacturers of ladies' dress goods, Lawrence, took up his duties as Superintendent of Streets on Tuesday. His term of office is for two years.

Augustus Provost, overseer of dyeing at the Carolina Mills, Carolina, R. I., has resigned to accept a position as overseer of dyeing at the Lafayette Worsted Mills, Woonsocket, R. I. He is succeeded by Robert Armstrong, formerly employed at the River Spinning Mills, Woonsocket, R. I.

Julius Forstmann, vice-president of the Botany Mills, Passaic, N. J., has severed his connection with that company and will hereafter devote his time to the management of the Forstmann Huffmann Company of the same city.

At a meeting of the directors of the Musgrove Knitting Company, Pittsfield, Mass., the following officers were elected: Michael Casey, president; Chas. M. Musgrove, clerk, and John H. Musgrove, treasurer.

Walter B. Snow, publicity engineer, Boston, has been elected president of the Alumni Association of the Massachusetts Institute of Technology.

Robert Reynolds, formerly overseer of finishing for the Merchant Mills, East Dedham, Mass., has accepted a position as overseer of finishing and dyeing for the J. D. Clark Company, Rochdale, Mass.

Paul Tower Wise, formerly manager of the Darnley Worsted Mills, Philadelphia, Pa., has accepted the position as superintendent of the Lymansville Worsted Yarn Mills, Providence, R. I.

Alec Linton has accepted the position as overseer of dyeing for the Ashaway Woolen Company, Ashaway, R. I.

Chas. Van Klerck, overseer of spinning for the Passaic Woolen Company, Passaic, N. J., has severed his connection with that company and accepted a similar position with the Stirling Mills, Ilion, N. Y.

B. Cullinan has accepted the position as superintendent of the Racine Woolen Mills, Racine, Wis. He was formerly employed at the Beaver Brook Mills, Collinsville, Mass.

J. Miller has been promoted to the position as superintendent of the print works connected with the Amoskeag Company, Manchester, N. H. He was formerly engaged as second hand in the weaving department.

Austin D. Boss, who has held the position as superintendent of the finishing department for the American Thread Company, Willimantic, Conn., has been transferred to the plant operated by the same company at Holyoke, Mass. The position made vacant by Mr. Boss has been filled by his assistant, Clifford J. Alpaugh and the position made vacant by the promotion of Mr. Alpaugh has been filled by Geo. M. Graves.

T. S. Haskell, superintendent of the Courtenay Mills, Newry, S. C., has accepted a position at Spartansburg.

James Butterworth, superintendent of the Aldora Mills, Barnesville, Ga., has returned to his duties after a visit in the north with his family.

W. W. Veal has accepted a position as overseer of weaving at the Carolina Mills, Greenville, S. C.

G. C. Leaugue has accepted a position as overseer of weaving at Cherokee Falls, S. C.

T. A. Hightower has accepted a position as overseer of weaving, slashing and drawing-in at the Merrimack Mills, Gaffney, S. C.

H. D. Williamson has severed his connection as overseer of the cloth room at Social Circle, Ga.

W. G. Reynolds has accepted the position as overseer of carding and spinning at the Erwin Cotton Mills, Cooleemee, N. C. He was formerly employed at the Gibson Mills.

James W. Wilson has accepted the position as overseer of spinning, spooling and warping at the Springstine Mills, Chester, S. C.

J. P. McNeill has accepted the position as superintendent of the Natchez Cotton Mills, Natchez, Miss. He was formerly employed at Jonesboro, N. C.

Dexter Stevens, superintendent of the yarn department of the Lancaster Mills, Clinton, Mass., gave a dinner to the overseers and second hands employed in the yarn department at the Stirling Inn. The dinner took place at 7.30. Mr. Stevens was presented with a solid silver desk set. Angus Burns, overseer of the ring spinning department, referred to the esteem in which Mr. Stevens is held by the help employed in the spinning department, Mr. Burns making the presentation speech.

John J. Bullett, for several years foreman in the carding department at the Peck Mfg. Company, Lowell Mill, has resigned and is succeeded by Wm. Silvernail, who was formerly overseer of this department.

Walton Hall, Jr., has accepted a position as superintendent of the Williams Duck Mill, Moodus, Conn., a position made vacant by the death of John D. Shea.

G. Berraclough has accepted the position as designer for the Hockanum Company, Rockville, Conn.

Silas I. Roberts, superintendent of the Riverside Cotton Mills, Danville, Va., for the past 22 years, died at his home, aged 76 years.

Henry H. Cypher has resigned his position with the Eureka Fire Hose Co., 14 Barclay St., New York.

Enos P. Cady, for a number of years pattern maker at the Arnold Print Works, North Adams, Mass., died January 9 at his home, 121 River St., in his 57th year.

Mark B. Smith, for many years in charge of the silk dyeing department for the A. H. Rice Mills, Pittsfield, Mass., and who later accepted a position in Danbury, Conn., is now in charge of the silk dyeing at the U. S. Government Paper Mill at Coltsville.

Andrew B. Widdoes, superintendent of the Wilton Woolen Mills, Wilton, N. H., has severed his connection with that company. He has been employed in this position since 1906.

Major Melvin, overseer of the weaving department of the Fall River Factory, known as Mill No. 5 of the Pocasset Mfg. Company, has severed his connection with that company and accepted a similar position with the Laurel Lake Mills, succeeding Daniel Keefe, who resigned. John Congden will succeed Mr. Melvin at Fall River.

J. W. Lamb has severed his connection at Randleman, N. C. He held the position as roller coverer and has accepted a similar position at Mooresville, N. C.

Robert H. Plass, overseer of carding at the McGinnis Mills, New Orleans, La., has severed his connection with that company.

Daniel Schofield has accepted a position as overseer of carding in the McGinnis Mills, New Orleans, La. He was formerly employed at New Holland, N. J.

Julius Bernhard has accepted a position as designer at Slayden-Kirksey Woolen Mills, Waco, Texas. He was formerly employed at the French River Textile Company, Mechanicsville, Conn.

Walter Gledhill, overseer at the Oakland Woolen Co., Oakland, Me., has severed his connection and accepted a position with the Bound Brook Woolen Mills, Bound Brook, N. J.

Chas. V. Brown, formerly overseer of finishing for the Chapel Mills, Cherry Valley, Mass., has accepted a position at the Salt's Textile Company, Norwalk, Conn.

Frank Holt, second hand in the carding department at the Ann & Holt Mills, Lonsdale, R. I., has severed his connection with that company and accepted a similar position at the Dartmouth Mills, New Bedford, Mass.

John Casey has accepted a position as overseer of spinning at Cincinnati, O. He was formerly employed at the Seneca Falls Woolen Mills, Seneca Falls, N. Y.

John W. Gledhill has severed his connection as overseer of finishing for the Chace Mfg. Company, Waterville, Me.

Wm. Melburn, overseer of spinning at the Williamsburg Knitting Company, Williamsburg, Va., has severed his connection with that company.

J. R. Garnett, overseer of finishing at the Gonic Mfg. Company, Gonic, N. H., has accepted the position as overseer of finishing at the Oakland Woolen Company, Oakland, Me.

John Malley, overseer of the scouring department at the carpet works, Thompsonville, Conn., was severely scalded about the head and shoulders while mixing chemicals in one of the kettles.

Peter Costello, formerly overseer of finishing at the Slayden-Kirksey Woolen Company, Waco, Texas, has accepted a position as overseer of finishing for the Hockanum Company, Rockville, Conn.

Alex. Long of Rock Hill, S. C., was elected president and treasurer of the Watts Mills, Laurens, S. C., and M. L. Copeland of Laurens was chosen assistant to president and treasurer. Mr. Long was president of the Aragon Cotton Mills, Rock Hill, and will continue to reside in that town.

Nelson Little has accepted the position as assistant superintendent for the Hockanum Mills, Rockville, Conn. He was formerly designer at the R. I. Worsted Co., Stafford Springs, Conn.

Peter Plouff, superintendent of the Minterburn Mills, Rockville, Conn., has severed his connection with that company. His successor is Frank Reiser, formerly assistant superintendent at the Hockanum Mills, who own and control the Minterburn Mills.

David Taylor has accepted the position as overseer of carding for Amos Abbott Woolen Mill, Dexter, Me. He was formerly employed at the Knoxville Woolen Mill, Knoxville, Tenn.

Chas. Young, overseer of carding at the Valley Queen Mills, River Point, R. I., has been appointed to a more responsible position at the Royal Mills, River Point. His successor at the Valley Queen Mills is Chas. Keoha, formerly overseer at the Royal Mills.

M. C. Johnson has accepted the position as overseer of carding at the Pepperton Mills, Jacksonville, Ga. He was formerly employed at the Monroe Cotton Mills.

S. S. Smith has accepted the position as overseer of carding at the Fidelity Mills, Charlotte, N. C. He comes from Mt. Airy.

W. K. Baldwin has accepted a position as oversser of carding and spinning at the Bessemer City Cotton Mills, Bessemer City, N. C.

W. F. Dellinger has accepted the position as superintendent at Athens, Ala. He was formerly employed at the Elk Cotton Mills, Fayetteville, Tenn.

Walter B. Hall, superintendent of the Hamilton Mills, Lowell, Mass., has severed his connection with that company. It is rumored that he has accepted a similar position elsewhere.

Chas. Jackson, for several years overseer of spinning at the Faulkner Mfg. Company, No. Billerica, Mass., has severed his connection with that company. He will be succeeded by Fred Bell who has been second hand in the spinning department at the Stirling Mills, Lowell, Mass.

Robert Schuler, head designer for the Weybosset Mills (American Woolen Co.), Providence, R. I., has been promoted to the position as superintendent of the Ray Mills (American Woolen Company), Franklin, Mass.

John Fagan, formerly assistant superintendent, but more recently with the Blackington Co., Blackington, Mass., has accepted a position as overseer of finishing for the Hinsdale Woolen Mill, Hinsdale, Mass., succeeding James Southern.

James Southern has severed his connection with the Hinsdale Woolen Mill, Hinsdale, Mass., as overseer of finishing.

Geo. A. Westbroke, overseer of dyeing at the Nasonville Woolen Co., Nasonville, R. I., has severed his connection with that company.

Jas. S. Greenwood has been engaged as overseer of drawing for the Limerick Mills, Limerick, Me. He was formerly employed at Worcester, Mass.

J. L. Eadie, head designer at the Globe Mills, Utica, N. Y., has severed his connection with that company and accepted a responsible position with the U. S. Bunting Company, Lowell, Mass. His successor is Geo. F. Haigh.

James E. Osborn was elected treasurer pro tem at a meeting held by the directors of the Corr Mfg. Company, Fall River, Mass., to fill the vacancy caused by the death of the late Wm. S. Potter.

E. N. Tart has been appointed superintendent of the carding and spinning at the German-American Mill, Draper, N. C. He was formerly employed as overseer of spinning at Monroe, N. C.

L. J. Turner has been appointed assistant superintendent for the Erwin Cotton Mills Company, Cooleemee, N. C. He formerly held the position as overseer of carding.

M. C. Johnson has accepted a position as overseer of spinning at the Pepperton Mills, Jackson, Ga. He was formerly employed at the Monroe Cotton Mills, Monroe, Ga.

T. D. Howard has accepted a position as overseer of carding and spinning at the Natchez Mills, Natchez, Miss. He was formerly employed at the Highland City Mills, Talladega, Ala.

J. H. Mayes has been appointed superintendent at Fitzgerald, Ga., succeeding Mr. Houston. Mr. Mayes comes from Mayesville, N. C.

J. W. Black, for several years superintendent of the Kinston Cotton Mills, Kinston, N. C., has been appointed general manager of the new mill at Kinston.

B. F. Houston has been appointed superintendent of the Kinston Cotton Mills, Kinston, N. C. He formerly had charge at the Fitzgerald Cotton Mills, Fitzgerald, Ga.

E. E. Boone has accepted a position as chief engineer and master mechanic at the Milford Mill, Fort Hill, N. C. He was formerly employed at the Cannon Mfg. Company, Concord, N. C.

John Arnold has accepted a position as superintendent of the American Textile Company's Mill at Rossville, Ga. He was formerly employed at Racine Woolen Mills, Racine, Wis.

J. C. Keller has accepted a position as overseer of carding and spinning for the Lula Mill, Kings Co., N. C. He was formerly employed at the Louise Mill, Charlotte, N. C.

Andrew Archer, overseer of weaving at the French River Textile Company, Mechanicsville, Conn., has severed his connection with that company.

Alfred Hodgson, superintendent of the Greenwood Mills, Passaic, N. J., for the past two and one-half years, has severed his connection with that company.

R. Delys has accepted a position as boss dyer for the Moore Spinning Company, No. Chelmsford, Mass. He was formerly employed at the Lafayette Worsted Company, Woonsocket, R. I.

Samuel Briggs, who has been connected with the Jamestown Worsted Mill, Jamestown, N. Y., and also Herbert Lawton & Company, New York, selling agents, died suddenly Monday morning, January 27. His wife, Mrs. Briggs, died on Saturday and the shock was too much for his heart, which had long been affected. He was highly esteemed in the woolen trade and was well liked by his associates.

E. W. Mercer has accepted a position as overseer of carding at Beaver Dam, Wis. He was formerly employed at Peru, Ind.

DEATHS.

Frank H. Dwelly, treasurer of the Tecumseh and Anconia Mills, Fall River, Mass., died at his home on Rock St. in that city very suddenly, January 25th. He had been ill for eight weeks but was steadily improving and his friends had reason to expect his complete recovery. He had recently undergone an operation which was successful and recovery was rapid, but complications of a serious nature developed. He was one of the most successful manufacturers in the city. Since his appointment to treasurership the history of the corporations which he represented had been one of uninterrupted success.

Geo. V. Cresson, president of the Geo. V. Cresson Co., engineers, founders and machinists of Philadelphia, died at his country residence on January 18 after an illness of some months. He was 71 years old and during his entire lifetime had been prominently identified with the iron and steel interests of Philadelphia. In 1859 he established the firm of Cresson & Hubbard, which was afterwards Cresson, Hubbard & Smith. In 1870 the Philadelphia Shafting Works was established at 18th St. and Alleghany Ave., and in 1892 this business was incorporated as the Geo. V. Cresson Co. and is now one of the great manufacturing enterprises of the city. Mr. Cresson was a member of the Manufacturers' Club, of which he had been president, the Engineers' Club and the Franklin Institute. He had no children.

Chas. Fisher, president and treasurer of one of the largest silk mills in Paterson, N. J., died at St. Joseph's Hospital, in that city, December 30, from serious injuries received a few weeks ago in a runaway accident.

Benjamin F. Boyer, president of the B. F. with him in business. Nearly forty years ago Mr. Boyer commenced the manufacture of yarn on North Front St., and from the very start the business prospered. Some years later the plant was moved to Delaware St., and again increasing business demanded a new factory which was erected on River Ave. This mill was up to date in every respect. Mr. Boyer was an active member of the Board of Trade and prominent in church activities, a kind employer and public spirited citizen. The business of the B. F. Boyer Co. will be continued as heretofore.

Alexander Mitchell, of the firm of James E. Mitchell & Co., yarn merchants of Philadelphia, died on January 6, after an illness of several months, at the age of 46 years. He had been connected with his father's business 27 years.

C. E. Trowbridge, aged 76 years, died at his home in Whitinsville, Mass., January 10, after an illness of several years. He had been confined to his bed for the past six weeks. He came to Whitinsville in 1854 and learned the trade as machinist in the Whitin Machine Works and later accepted a position as master mechanic for the Whitinsville Cotton Mills.

Samuel W. Bass, a retired bobbin manufacturer of Lawrence, Mass., shot himself at his home, Haverhill Street, in that city, January 10. He had been despondent over the death of his wife.

Emanuel Wallach, the last surviving partner of the firm of H. Wallach Sons, dealers in cotton goods, 38 Thomas St., New York, N. Y., died at his home, 165 W. 87th St., New York City, at the age of 50 years.

Jas. Poland, formerly connected with the Smith Webbing Company, Pawtucket, R. I., died at his home in that city after a brief illness of grip developing into pneumonia. Some years ago, with his parents, he came to Providence and spent the most of his life in that city, receiving his early education from the public schools. He prepared for college, where he maintained a creditable standing, but left without completing his course in order to assist his father in business. In 1896, he entered the service of the Knowles Loom Works at Worcester, where he became proficient in the art of weaving, inventing several devices for faculting different looms. When the Knowles Loom Works obtained control of the Gilbert Loom Works, Mr. Poland became assistant superintendent of the Gilbert Works.

Louis M. Givernaud, a member of the firm of Givernaud Bros., first to establish silk manufacturing in the United States, died at Los Angeles, Cal., of heart disease, aged 73 years. He had been

in Los Angeles for two months, where he intended making his home. He was born in Lyons, France, and came to this country forty years ago.

Silas I. Roberts, for 22 years superintendent of the Riverside Cotton Mills, Danville, Va., died at his home in that city after several months' illness, aged 76 years. He was a native of Waterbury, Me., and leaves a wife and three children.

Geo. F. Kuett, treasurer and general manager of the National Ribbon Company, whose plant is located at the corner of 21st Ave. and E. 38th St., died at his home at 515 E. 38th St., Paterson, N. J., January 6th after an illness of one week. In 1884 he started in business with the late Jacob Horandt in the Dale Mill, the firm name being Kuett & Horandt and continued in business for six years.

Thos. Ford, president of the Ford Carpet Mills, Taconey & Pennsylvania Railroad, died of heart disease at his home, 3612 Frankford Ave.

Chauncey H. Strickland died at his home, 472 W. 143d St., New York City, after a short illness. He was born in West Stafford, Conn., June 2, 1844. Some years ago, he was in company with Samuel Fitch, Son & Company, manufacturers of stockinets, at Rockville, Conn. Later he was employed as manager for the Beach Mfg. Company, Beacon Falls, Conn., and later manager of the Belding Bros. & Company, silk manufacturers, at their New York headquarters.

Fred Hartley, one of the best known wool dealers, with office at 246 Summer St., Boston, Mass., committed suicide January 14 at the Homeopathic Hospital in Boston by cutting his throat with a razor. He had been a sufferer from diabetes for some time and recently had been worried and overworked on account of the financial panic. He had been confined to the hospital since January 7. He was considered an expert on all grades of wool and had been in the business for 20 years. He was 51 years of age and is survived by a widow, one son and a daughter.

Former Governor Chas. H. Sawyer died at his home, Dover, N. H., January 18, after an illness of several weeks. He was born in Watertown, N. Y., March 30, 1840, and was a graduate of the Franklin Academy. At the age of 17 he entered the Sawyer Mills, owned by his father and uncle. Later he became part owner and general manager of the business. In 1873, the firm was incorporated, at which time he succeeded to the presidency, made vacant by the death of his uncle, which position he held until the mill was purchased by the American Woolen Company. He was elected governor of New Hampshire under Republican ticket in 1886. Since his retirement from office, he devoted his time chiefly to farming.

Major Abram V. Morris, founder of the extensive Morris Knitting Mills, Amsterdam, N. Y., and largely interested in other industrial enterprises, died January 18 at the age of 83 years. He retired from active business eleyen years ago, the business having been continued by his sons. He was head of the bank in Amsterdam bearing his name.

Geo. H. Wade, manufacturer of chemical dyestuffs and a prominent citizen of Hyde Park, Mass., died January 18 at his home, 81 Maple St., of a complication of diseases. He was 37 years of age.

Samuel Pendlebury, one of the oldest residents of Frankford and a well known boss dyer, died at his home, 4617 Penn St., at the age of 82 years. Death was due to a complication and troubles incident to old age. He was born in England and came to this country when very young. He followed his father's trade as dyer and finisher and established the concern known as Samuel Pendlebury & Son.

Wm. Ernest Lucas, a cotton manufacturer of Laurens, S. C., died in that town in his 44th year. He was one of the remarkable men developed by the growth of cotton spinning in South Carolina. He was connected with the Watts Mills, Laurens, S. C.

Chas. Stratton, a knit goods manufacturer of Stoughton, Mass., died at his home, January 21, at the age of 85 years. He was a native of Leicester, England, and came to this country in 1853, settling at Germantown, Pa., where he became a leading expert on knit goods. In 1866 he moved to Canton and three years later to Stoughton. He retired from active business in 1890.

Wm. S. Potter, treasurer of the Flint Mills, Fall River, Mass., and for several years of the Corr Mfg. Company, Taunton, Mass., died at his home in that city. He had been treasurer of the Flint Mills since 1882 and was born in 1847. He graduated at Harvard and has been connected with a local corporation since 1870. He was a successful manufacturer, and leaves a widow and a daughter.

John C. Thickens, Tillotson Silver Lake Mills, Pittsfield, Mass., died at the family residence on Charles St. January 17, after a long illness of a complication of diseases. He was born June 4, 1848, at Oriskany, N. Y.

Jos. Dwyer, a prominent young man and a knitter by occupation, died at his home, 55 Main St., Cohoes, N. Y., January 15.

Geo. E. Buell, a retired hosiery manufacturer and a most prominent citizen of Franklin Falls, N. H., died at his home in Franklin of Bright's disease. He had been in failing health for more than a year and has been confined to his home only a week. He was 75 years of age and is survived by his wife and a daughter.

David Ballou died at his home, 1 Hazzard St., Providence, R. I., of heart trouble, from which he had long been a sufferer. Mr. Ballou was a son of Geo. C. Ballou, with whom he had been associated for a number of years in the cotton manufacturing business at Woonsocket, R. I.

Chas. W. Brown, overseer of teaming and farming for the Putnam Woolen Company, Putnam, Conn., died at his home on Church St., December 30, aged 55 years. He had been in the employ of the Putnam Woolen Company since 1873.

New Publications.

Steaming in Weave Sheds; by F. Scarisbrick, president of the Blackburn (Eng.) District Managers' Mutual Association; 67 pages, 6 by 8; published by the author; price, 50 cents.

The author has stripped his discussion of the subject of everything that is not essential to an understanding of his view of the question. The work shows plainly that he has expended much time and effort to determine the facts before forming or expressing his opinion. The volume appears at a time when the question of air-moistening in workshops is attracting much attention on both sides of the Atlantic. It is full of information bearing on this subject and should be in the possession of every textile manufacturer.

The Continent of Opportunity; by Francis E. Clark, D. D., LL. D.; 341 pages, 5 by 8; Fleming H. Revell Co., New York; price, $1.50.

The author, armed with numerous letters of introduction, including one from President Roosevelt to various officials in South America, gathered the material for this volume during a five months' journey through that vast territory. In view of the fact that much space is devoted to a discussion of the religious features of the subject, it would be too much to expect more than a cursory view of South America in this volume. The writer tells his story in an interesting way, and its publication is fully justified by the interest that it is calculated to awaken in that vast undeveloped region known as South America.

Mill Management (Der Fabrikbetrieb); by Dr. Albert Calmes; Fehr'sche Buchhandlung, St. Gall, Switzerland. 159 pages, 5 1/2 by 8 1/2. Price $1.50.

This volume treats of bookkeeping especially adapted for factories, also of a system of estimating the cost and the organization of a mill. The text is in German.

Textile Handbook (Textile Handelskunde); by Prof. Artur Einoehrl; 279 pages, 6 by 9; Alfred Hoelder, Wien, Austria. Price $2.00.

This is a compilation of miscellaneous information relating to the textile trade. The material was collected by the author while in charge of the textile school at Vienna and is intended as a handbook for students and others. It gives information regarding the commercial customs in the textile trade, but the author has unfortunately omitted an index, which would be especially valuable in a work of this kind. The text is in German.

Technology of Hand Weaving (Technologie der Handweberei); by Heinrich Kinzer, director of the weaving school at Jaegerndorf, Austria. 236 pages, 6 1/2 by 9 1/2. Price $2.00.

This work is issued in two parts, the first being devoted to harness weaving and the second to jacquard weaving. The subjects of the various sections of the first part are: Warp preparation, weaving; the loom. The second part describes the various types of jacquard head motions. Both volumes are illustrated with many excellent drawings. The text is in German.

Business Literature.

Labor Saving Looms, 3d Edition, 1907; written and compiled by George Otis Draper, Hopedale, Mass.

This volume contains an account of the Northrop loom and other labor saving weaving machinery and has been brought up to date as nearly as the continuous progress made by the Draper Co. will permit of any publication. It is written in a very clear style and freely illustrated.

German Colonial Cotton Co. (Deutsch-Koloniale Baumwoll-Unternehmungen); by Carl Supf, Berlin, N W 7, Unter den Linden.

This is the 9th report of the German Colonial Cotton Commission and gives a brief outline of what has been accomplished in raising cotton in Germany's African colonies. In 1908 the crop of German cotton amounted to 82 bales and in 1906 had grown to 1,435 bales. This is a very meagre result when compared with the energy, patience and money expended in developing this new industry. The report is illustrated with a number of engravings showing scenes in the African cotton fields.

Electrical Apparatus; the Crocker-Wheeler Co., Ampere, N. J.

This company is calling the attention of the trade to its products by a series of bulletins of which we have received parts 91, 92, 93, and 94. They contain descriptions, illustrations and specification lists of induction motor panels, combined generator and feeder, panels direct current 125-250 volts, small engine type direct current generators, and alternating current switchboard panels.

Calendars.

Speed & Stephenson, Textile Machinery, S. Lawrence, Mass.

The friends of these well known dealers are receiving a particularly pleasing calendar with an attractive decoration in relief.

Wm. H. Lorimer's Sons Co., Mercerized Yarns, Philadelphia, Pa.

This well known company are sending out a very beautiful calendar showing a copy of the celebrated painting, "Home, Sweet Home."

The Draper Co., Hopedale, Mass.

A handsome calendar differing from the usual monthly arrangement. It is arranged by weeks with memorandum spaces for notes. At the top of the calendar is a good view of the model tenements in the village of Hopedale.

The Arguto Oilless Bearing Co., Wayne Junction, Philadelphia, Pa.

A calendar in two colors suitable for office use and illustrated with pictures of their pulley equipment.

The Eureka Fire Hose Mfg. Co., 237 Broadway, New York, have issued a calendar and a poster illustrating the care of fire hose. The calendar shows a picture of a heroic rescue from a burning building.

Eureka Fire Hose.

At a meeting of the stockholders of the Eureka Fire Hose Company held on January 20, 1908, it was decided to change the name of the company to "Eureka Fire Hose Manufacturing Company."

The following directors were elected for the ensuing year: B. L. Stowe, N. F. McKeon, G. A. Wies. Other officers: B. L. Stowe, president; I. B. Markey, vice-president; G. A. Wies, vice-president and treasurer; N. F. McKeon, secretary; W. F. Wies, assistant treasurer; W. F. Volz, assistant secretary.

The Fuld & Hatch Spinning Mill.

We recently reported that the contracts had been let for the new spinning mill in Cohoes, N. Y., which will be built to supply yarn for the Fuld & Hatch Knitting Co. at Albany.

THE NEW FULD & HATCH SPINNING MILL.

This concern has been growing rapidly in the last ten years, and after careful investigation concluded to build a yarn mill. They have engaged the services of J. W. Taylor to supervise the building of the mill and to take charge of it when finished. Mr. Taylor's previous experience at Taunton and elsewhere as manager of yarn mills has given him valuable experience for such a position.

The mill is located at the corner of Oneida and Saratoga Streets, near the canal. They have a fine fall of thirty-eight feet, giving them ample water power to generate electricity through powerful dynamos. Electric drives will be employed and the picking and spinning frames will be driven by individual motors. The mill building will be large enough to accommodate 26,000 spindles, but 10,000 spindles will be installed at first. The equipment includes Kitson opening and picking machinery, Woonsocket fly frames, while the combers, spinning frames and other machinery are of Whitin make. The building is expected to be ready by March 1st, and it is hoped the mill may get into production by May 1st. The product will be almost entirely combed yarn.

The company expects to build attractive tenement houses near the mill, and with the modern, up-to-date machinery equipment and attractive rooms, free from overhead shafting and belts, it is believed that the very best class of help will be attracted.

Preventing Decay of Wood.

In a recent visit to a large print works the statement was made that in some of the rooms floors rotted away regularly in from six months to a year's time, due to the premature decay of the wood work. The expense for repairs is a very important factor.

More than twenty-five years ago a wood preservative was invented in Germany, known as Avenarius Carbolineum, and the lapse of years has given ample opportunity of testing its value. The Carbolineum Wood Preserving Co. of N. Y., 349 West Broadway, New York City, is the American manufacturer of this product and have in their office interesting specimens of wood treated by their process, taken from fences, posts and so forth that have been exposed to the weather for twenty-five or more years and still in a good state of preservation.

They have found special value for this preservative in textile mills where it is used for the preservation of dye tanks, vats, floors in the finishing room, and so forth. It is of particular importance to treat the upper timbers where the condensation of steam collects and settles into the timbers in joints and points of contact where the moisture collects and cannot readily dry out. This preparation is easily applied. One-third of a gallon covers 100 sq. ft. The price ranges from 80 cents per gallon in barrels to 85 cents in half barrels.

The Arnold Print Works are treating paving blocks with Avenarius Carbolineum for use on mill floors. The tank and cage required for the treatment are so simple that they were rigged up in their own yard without outside help.

They Cannot Eat or Drink It.

The annual meeting of the shareholders of the Tati Concessions, Limited, was held in London December 3. Mr. H. Flux, the chairman, said they had been passing through difficult times, and felt they might have done worse than they had. The Tati revenue account showed a balance of $13,744. The rent of claims was less than last year, owing to the abandonment of a large number of claims previously held by the Tati Blue Jacket Syndicate. Having mentioned that they had an area of 80,000 square miles, the Chairman said not much progress had been made with cotton growing, as it was difficult to induce the Kaffirs to take it up. Instructions were given them and seed distributed, but all to no purpose. They said, "We cannot eat it, and we cannot make drink out of it, and we will not grow it." Renewed efforts had been made this year. Their manager was now away in the northern part of the Company's district trying to interest the natives in cotton growing, and a few of the more intelligent had promised to give it a trial. With the low prices now ruling for grain they were more likely to be open to the conviction that it was to their interest to cultivate cotton.

Two samples of cotton grown at Selepsen, in the concession and 24 miles north of Francistown, were handed round for the inspection of the shareholders. The British Cotton-Growing Association had reported upon them as follows: "Fully good middling in class, good color, staple 1 1/8, desirable cotton, value about 16 cents per pound."

Dissatisfaction was expressed by several shareholders, but the report was adopted.

Large Water Softener Installation.

The Dodge Manufacturing Co., of Mishawaka, Ind., has recently completed the installation of a large automatic "Eureka" water softening and purifying system for the Clinton (Mich.) Woolen Mfg. Co. The plant has an hourly capacity of 11,000 gallons, and works in conjunction with an automatically controlled storage tank. The supply to be treated is a hard, turbid, river water, and a much superior finished product, as well as a decided curtailment in manufacturing expenses, is anticipated. The soft water will also be used for boiler feeding, thus eliminating scale.

Among the latest plants installed in textile mills by this company are those at The Burson Knitting Co., Rockford, Ill., Ipava (Ill.) Woolen Mills, South Bend (Ind.) Woolen Mills, Cooper, Wells & Co., St. Joseph, Mich., and Des Moines (Ia.) Hosiery Mills.

Large Napper Installation.

The Esmond Mills, at Enfield, R. I., controlled by Clarence Whitman & Co., have recently made a large installation of Mueller 36 Roller Napping Machines, for which A. W. Buhlmann, Broadway and Broome St., New York, is the American agent. The mills are much pleased with the working of the machines and the results obtained.

Improving Jute Culture

A recent report from Consul-General W. H. Michael, of Calcutta, shows that the jute manufacturers of India are facing a problem like that with which the cotton trade is wrestling:

The crop for 1907-8, according to the figures available, will be an average yield of 2 1/2 bales to the acre, which will be considered an average poor yield. The normal standard yield is 3 bales of 400 pounds to the bale under the present unscientific method of cultivation by the natives, who, notwithstanding the effort of the government to teach them better methods, persist in following the example of their fathers and grandfathers. The agricultural department of Bengal has demonstrated that 4 1/2 bales can be raised per acre by careful selection of seed, proper manuring, and more enlightened cultivation. The average Indian farmer, however, pays no attention to what the government is doing on a farm lying alongside of his "beghas," and goes on in his primitive way.

To meet competition in fibers it has been wisely suggested that the jute mill owners club together and secure 10,000 acres and put it under scientific cultivation and thereby not only supply themselves partly with the best quality of jute, but also force the native farmer to take heed of the lessons in modern farming given him by the government. This would be a good scheme not only for the jute mills, but it would usher in a new era for farming generally and would eventually compel the Indian ryots to adopt modern agricultural implements and machinery, the best specimens of which are made in the United States.

Selling Merger.

Blodgett & Orswell Co., Pawtucket, R. I., manufacturers of spool cotton, threads and similar lines, announce that on January 1, 1908, they took over the selling business conducted under the name John J. Clark & Co., at 77 Greene St., New York. N. Y. The business will be continued as the Blodgett & Orswell Co., and for the convenience of out of town buyers, the New York office at 77 Greene St. will be maintained. All correspondence and remittances should, however, be addressed to Blodgett & Orswell Co., Pawtucket, R. I.

The Putnam Manfg. Co., Putnam, Conn., have adopted the American Moistening Co.'s system of humidifiers.

Stung!

"One day," relates a teacher, "I gave a bright boy a problem in algebra, and although it was comparatively easy, he couldn't do it. 'You ought to be ashamed of yourself!' I remarked. 'At your age George Washington was a surveyor!' The boy looked me straight in the eye. 'Yes, sir!' he replied, 'and at your age he was President of the United States!' "—The Hamiltonian.

Who Read Trade Press Publications?

If you were to be appointed to a responsible position in a railroad administration or in a manufacturing industry, where would you go for information about the latest equipment and methods? You would turn immediately to the trade press publications dealing with the transportation or manufacturing industry concerned. In this great country of invention and development nothing is fixed. Equipments and materials of today are constantly being replaced by those of more efficiency and economy. In one of the great steel plants in Pittsburg new installation of machinery costing hundreds of thousands of dollars was replaced in less than two years by even more expensive equipment, but which produced a better product at less expense. Whatever one may know of the mechanics of any business or industry of one year ago, he could not be depended upon to undertake any important enterprise on such a knowledge.

In business life today we find two methods of keeping in touch with progress. There are business and trade organizations, local and national, which deal with many of the general problems for advancement. The other factor is the trade press. This class of publications has grown in recent years from meagre trade reports to the largest periodicals of the world, giving the latest scientific and trade news and amounting to practically complete showing of equipment for the industries concerned through advertising pages.

After a tour of the United States, Sir Alfred Hammersmith said of the American newspapers, "Apparently sin is news, but what of the great industries and enterprises of your country?" He could find his answer in the trade press publications which now ably represent every commercial and industrial interest.

The second annual convention of the National Federation of Trade Press Associations has just taken place. There are in all over two hundred and fifty publications which deal with the professional, transportation, manufacturing, commercial, and financial interests of the United States. These constitute the text-books from the first grade to the universities of the great business life of this country.

Who reads these trade press publications? Those who are foremost in the management of the railroads, the cotton and woolen mills, iron and steel industries, electrical and mechanical shops, the mammoth wholesale and retail food products and dry-goods establishments and all banking institutions. They must know what is being done and what the world affords. The heads of all departments will fail to meet the responsibilities placed upon them if they too are not well posted and aggressive in their methods. The ambitious workman of today will be the proprietor of tomorrow. He, too, must look to his text-books—the trade press publications—for the broad knowledge of conditions outside of his own environment.

Among the questions which are frequently asked applicants for positions as teachers are these: Are you taking any educational journals? If so, how many? In some instances a certain number of points are given for favorable answers to these questions. Similar questions apply equally well as an indication of the enterprise and efficiency of workmen, foremen, superintendents, executive officers, and the heads of firms, in all other lines.

The United States could not have reached the high degree of development in medicine, architecture, music, business, manufacturing, and transportation without the leadership of the trade press. With the certainty of still further specialization in all lines, the trade press will be of correspondingly greater importance.—Printing Art.

Among the Silk Mills.

A correspondent whose business takes him continually among the silk mills of Paterson and New York writes:

"I am out every day and all day and naturally have a chance to hear what the silk manufacturers have to say and judge how they feel. Probably there is no branch of the textile industry which is so uncertain. The silk business at its best is fickle—brisk today and dull tomorrow. Silk being more or less of a luxury, every depression or boom is quickly reflected in it. During November the manufacturers in New York, Brooklyn and New Jersey were exceedingly depressed. This condition lasted until the middle of December, when hope was revived by considerable sales of goods dated January 15, 60 days. Most manufacturers believed with the new year conditions would improve, and so far their hopes seem to have been fairly well justified. A number of mills which were on short time are now running full time. Quite a few have not felt any improvement. Especially is this condition noticeable in the braid and millinery trimming line in New York and Brooklyn. The next two months will probably be the best months in these lines, for a period of dullness usually comes along in March in the best of years."

Hosiery and Underwear.

Ellis Bros., at 533 Market St., Philadelphia, are well known to the knitting trade as wholesale dealers in hosiery, underwear and all classes of knit goods, a business which they have been in for many years and which has been growing continuously until they now have one of the largest establishments for the handling of this class of goods in the Philadelphia district. They have a large trade among knit goods manufacturers, who use the facilities they offer, for the distribution of their goods. They are in readiness, at all times, to buy for cash, accumulations of jobs, seconds, perfect hosiery and underwear and also unfinished hosiery, no quantity being too large for their use. They also state that business at this time of the year is somewhat backward and especially so on account of the recent financial flurry. While they have not been placing very heavy orders they are now anticipating a large spring business and are getting in readiness to place their orders for the coming season.

The Hatheway-Sheffield Co.

"The Sample Card Shop" has moved from 394 Canal St. to 173-175-177 Lafayette St., New York City, having found their old quarters too small. This rapidly growing concern is now in a position to handle promptly all orders for sample cards, color cards, flat card mounting, printing, etc. With years of experience in this line they are equipped to offer suggestions for the sample department of any business. This applies particularly to the handling of the samples in salesmen's outfits. In these days of showing the "thing itself" to the prospective buyer the problem of economy of space for samples is a grave one and a practical suggestion from a competent sample card maker will often simplify what appeared to be a hopeless situation.

A New Sizing Material.

Tangol, the new sizing, for which the Arabol Manufacturing Company, 100 William St., New York City, have secured the American rights, is used extensively in Europe. Large quantities of it are used in the textile centres of Germany and Bohemia. Full particulars regarding this product can be obtained on application to the American agents.

The Pickering Plant to be Sold.

The entire equipment of the Pickering Mfg. Co., Lowell, Mass., including all the knitting machines, sewing machines and auxiliary machinery used in the manufacture of spring needle knit underwear for men, women and children, has been placed in the hands of the Drew Machinery Agency, Manchester, N. H., for sale in lots to suit the purchaser. Inspection of the machinery may be made by appointment at the factory in Lowell, Mass. An illustrated catalogue giving detailed lists may be had upon application.

Arthur Tomalin.

The resignation is announced of Arthur Tomalin, general advertising agent of the Central Railroad of New Jersey and editor of the Suburbanite, the Central's monthly publication. Mr. Tomalin has accepted a position as general manager of the Scranton Tribune, long known as the leading morning newspaper of Northeastern Pennsylvania. Besides publishing the Tribune, the company, control of which passed recently to Robert D. Towne, of Newark, N. J., operates a large job printing plant with extensive bindery and engraving departments.

The Forestdale Manfg. Co., Forestdale, R. I., have placed a repeat order for humidifiers with the American Moistening Co., Boston, Mass.

Cotton Mill Profits in Japan.

The following report of profits in the cotton mills of Japan was recently made by Henry B. Miller, the American Consul-general at Yokohama:

"The half-yearly accounts of the Settsu, Amagasaki, Osaka, and Fukushima spinning companies closed at the end of November, and that of the Godo Spinning Company at the end of December. The net profit of the Settsu Spinning Company for the period is estimated at about $400,000 gold, which would give a dividend at the rate of 40 per cent. per annum. The net profit of the Amagasaki Spinning Company is estimated at about $250,000, with a probable dividend of 50 per cent. The Osaka Spinning Company's profit is estimated at $350,000, which would allow a dividend of 20 per cent., while the Fukushima Spinning Company, with an estimated profit of $120,000, could declare a dividend of 30 per cent. The estimated net profit of the Godo Spinning Company is $475,000, allowing a dividend of 30 per cent."

We understand that the decrease of the dividend of the Settsu Spinning Company by 10 per cent. from the rate of the preceding period is due to the incorporation of the Koriyama Spinning Company, which has been purchased by the company during the present period. It is stated that all the spinning companies which are also engaged in cotton weaving have advance orders for the whole of their output up to November or December of 1908.

Do it Without Argument.

Argument and bickering and worrying over small things is one of the greatest evils in the working world. Procrastination merely is petty larceny of time as compared with argument.

How many workers there are who, when told to do something, stop to debate or bicker over the manner in which that thing is to be done. How many there are who want to argue the point from every possible angle. And how many there are who, having been curtly "shut up" and told to do it, waste still more time worrying and fretting.

These workers forget that the object is to get a thing done—and that the way it is done is secondary. If it is not done right, of course, there is trouble, but that is not the point. The arguments chiefly are as to differences in method in accomplishing the same end.

Only a few days ago I watched a plumbing contractor and plumber engaged in putting a steam pipe through an 18-inch wall, says John M. Masterson. The contractor explained briefly and concisely how he wanted it done. The plumber stopped, put down the pipe, and argued. He declared that he never had done that kind of work in that way, that he had worked for some of the best master plumbers in the country, and that they did not do it that way. He started to get technical and the boss shut him up curtly.

After hours that evening the two rode home together. The plumber had been pouting and sulking all afternoon on account of the reprimand. This time he found the boss ready to argue, and

they engaged in a long and technical debate. Finally the master plumber remarked:

"Jack, this is your worst fault. You don't know how to obey orders. In the first place, when I tell you to do something, you are likely to start without knowing exactly what I want. Never do that. Always find out, before attempting any work, exactly what is wanted.

"You don't know how to take orders. This is my job, and I am responsible. I tell you to do something. When I do that it is up to you to do that work and do it my way. It may not be as good as your way, but that is the way I want it, and, as I assume all responsibility, that is the way I'm going to have it.

"You knew just as well as I this morning how I wanted that pipe connection made. Instead of making it that way, you wanted to try it some other man's way. You wasted over five minutes of my time and your own, arguing about it.

"You'll never be a first class plumber until you learn to do things the way the man you are working for wants them done and orders them done."

That was plain talk—but it settled Jack. He admitted frankly that he never had looked upon it that way.

That same day I watched two painters at work on a house. They were just starting. They set out barrels, brushes, buckets and ladders, and then spent 20 minutes debating whether to start with the roof or on the east side. The boss had just driven away after telling them to start on the roof. It was nearly an hour before they finally decided that he was right—and meantime they had soaked the house owner nearly $1 in time—or the boss, if they were working by the job.

I see this tendency to bicker and waste time in small things in every line. I have a friend, a capable, even a brilliant man, who wastes hours every day fretting himself over small quarrels, fancied slights, neighborhood rows, etc. Instead of simply passing them over as not worth while he is keeping himself from doing something really big in the world by letting the small things occupy his mind and his time. Just at present he is wasting an hour or two a day telling people about a grievance he has and planning revenge. The grievance is against a firm that he employed to clean some oriental rugs and which almost ruined one of the rugs in the cleaning.

The rug, to my certain knowledge, cost $85, and this man, since the accident, certainly has wasted at least $100 worth of valuable time kicking about it.

The wise man is he who knows whether or not a thing is worth arguing about, or "raising a row over." He certainly cannot afford to waste either his own or his employer's time in petty bickerings. —New York Commercial.

Stehli & Co., High Point, Ga., have installed additional humidifiers, adopting the American Moistening Co.'s system.

The Gandy Belting Co. Wins Another Victory.

The United States Court for the Northern District of Illinois, Eastern Division, has just issued a decree in their favor, in an action brought by them against the Weller Manufacturing Co. of Chicago, perpetually restraining them from selling, advertising, offering or announcing for sale, or supplying stitched cotton belting painted or dyed red in imitation of the Red Stitched Cotton belting manufactured by the Gandy Belting Co. of

Baltimore, accompanied by the word "Gandy" affixed or applied thereto, or used in connection with the sale thereof.

It also permanently restrains them from in any way using the trade-mark of the Gandy Belting Co., cut of which is shown herewith.

The Gandy Belting Co. announces that they were forced to bring this action in order to protect the consumer, and to break up the fraudulent practice among certain manufacturers and dealers of selling all kinds of imitation stitched cotton duck belting, claiming it to be the genuine "Gandy Belting."

Consumers are therefore warned to be particular and see that the belting they buy bears the words "Genuine Gandy" stamped at every ten feet.

It is the intention of the Gandy Belting Co. to prosecute vigorously every case of infringement brought to their attention in order to put a stop to the trespass upon their good will.

Coal.

Under the modern organization of industry and commerce by which the different trades, even the most widely separated by distance, are dependent on one another, it is difficult to name any product as the basis of all industry. No product, however, can present stronger claims to the basic position than coal. It is but a few years since a partial interruption of the coal supply from one State threatened the country not only with a paralysis of trade, but with death from starvation and cold among a large section of the population. Because of the necessity of an uninterrupted supply of fuel no industry is established on a more permanent basis than the mining of coal. It is this fact that makes the recent announcement by the Cross Creek Coal Company of especial interest to investors. The coal mining industry being assured of a market, the question of investment revolves itself into a consideration of the particular enterprise under consideration. The Cross Creek Company state that they have a large coal acreage, 7,000 acres, and a production of 60,000,000 to 100,000,000 tons, yielding a profit of over $1.00 a ton. Further particulars regarding this enterprise can be obtained upon application to Mark Packard, 609 Mutual Life Bldg., Buffalo, N. Y.

Recent Textile Patents.

COMBS, MANUFACTURING COTTON. 876,358. Ralph Jowett, Pawtucket, R. I.

COMBING MACHINE FOR COTTON. 875,932. James Jolly, Bolton, and Percy E. Willis, Atherton, England.

DYEING APPARATUS. 875,553. Frank N. Patterson, Lexington, N., C.

FABRIC. 876,750. Eugene Vermilyea and Ralph Hammersley, Waterford, N. Y.

FABRICS. Means for Producing Selvage in Loom-woven. 876,494. Levi E. Salisburg, Providence, R. I.

FIBROUS STOCK FEEDER. 12,740. Stephen W. Woodbury, Newton Highlands, Mass., assignor to Sydney Harwood, Newton, Mass., and John H. Harwood, Brookline, Mass.

FILAMENTS FROM VISCOSE or Similar Material. Producing and Forming Twisted. 876,533. Charles A. Ernst, Lansdowne, Pa., assignor to Silas W. Pettit, Philadelphia, Pa.

HOSIERY, Manufacture of. 876,797. George H. Gilbert, Germantown, Pa.

KNITTING MACHINE. 875,707. Andrew V. Groupe, Philadelphia, Pa., assignor to E. Jenckes Manufacturing Co., Pawtucket, R. I.

KNITTING MACHINE. 876,815. Elihu Lippitt, Philadelphia, Pa.

KNITTING MACHINE. Circular. 876,283. John B. Paxton and Ellis I. O'Neill, Philadelphia, Pa.

KNITTING MACHINE Needle Protector. 875,767. George L. Ballard, Norristown, Pa., assignor to Wildman Mfg. Co., Norristown, Pa.

KNIT MUFFLER. 874,465. John H. Way, St. Davids, Pa.

KNOT-TYING APPARATUS for Bags. 876,573. Carlos D. Myers, Cleveland, O., assignor of one thirty-second to F. W. Grifflin, one sixty-fourth to Frank R. Williams, and one sixty-fourth to George Bates, Cleveland, O.

LOOM. Hand. 876,813. Rose K. Lenox, New York.

LOOMS. Individual Take-up Mechanism for Narrow-Ware. 876,407. Albert H. Steele, Worcester, Mass., assignor by mesne assignments to Crompton & Knowles Loom Works, Worcester, Mass.

LOOMS. Machine for Making False Reeds for. 876,614. Wilbur E. Wingate, Lawrence, Mass., assignor of one-half to Emmons Loom Harness Co., Lawrence, Mass.

LOOM. Pile Fabric. 875,792. John F. Dustin, Springfield, Mass.

LOOMS. Weft Case for Automatic Weft Replenishing. 875,890. Heinrich O. Brandt, Manchester, Eng.

LOOMS. Weft Replenishing. 876,418. Horace Wyman, Worcester, Mass., assignor to Crompton & Knowles Loom Works, Worcester, Mass.

LOOM CONTROLLING Device. Automatic Weft Replenishing. 874,550. Albert E. Walker, Arthur Walker and George Walker, Halifax, Eng.

LOOM PICKER. 875,772. William A. Bramall and John A. Bramall, Moore, Pa.

LOOM-PICKING Mechanism. 876-011. Charles E. Perham, Lowell, Mass.

LOOM THREAD-PARTING Mechanism. 875,461. Alonzo E. Rhoades, Hopedale, Mass., assignor to Draper Co., Hopedale, Mass.

LOOM-SHEDDING Mechanism. 876,353. Elbridge R. Holmes and Arthur S. Cowan, Worcester, Mass., assignors to Crompton & Knowles Loom Works, Worcester, Mass.

LOOM STOP MOTION. 875,104. Friedrich Pick, Vienna, Austria.

LOOM SHUTTLE CHECK. 876,005. William Mason, Pawtucket, R. I.

PILE FABRIC. Woven. 874,677. Frank J. Hall, Philadelphia, Pa.

SPINDLE-DRIVING Mechanism. 874,614. Wm. T. Noah, Elon College, N. C.

SPINNING MACHINE. 874,662. John A. De Vito, Boston, Mass.

SPINNING MULE Attachment. 875,655. Robert J. Harrington, Dalton, Mass.

SPINNING AND TWISTING Ring. 874,429. George T. Pierce, Manchester, N. H., assignor by mesne assignments to High Speed Ring Co., Boston, Mass.

Textile Trade Marks Registered.

"E. & M." Worsteds and Cheviots. Eliot & Matthews, Los Angeles, Cal.

"Mikado." Shirt-waists, Collars, etc. Wm. A. Kraemer, Los Angeles, Cal.

"Character Clothes." Men's Coats, Vests, etc. Jacob Cohen & Co., New York.

"Ruchiffon." Chiffons. L. Erstein & Bro., New York.

"Knoxall." Spool Cotton and Sewing Thread. American Thread Co., Jersey City, N. J.

"SX." Spool Cotton and Sewing Thread. American Thread Co., Jersey City, N. J.

"Kismet." Spool Cotton and Sewing Thread. American Thread Co., Jersey City, N. J.

"O. Y. E." Knit Hosiery and Underwear. M. & C. Mayer, New York.

"The L System." Coats, Pants, Vests, etc. H. M. Lindenthal & Sons, Chicago, Ill.

"Panajah." Textile Worsteds. Prudential Worsted Co., Philadelphia, Pa.

"Flaxon." Cotton Piece Goods with Linen Finish. Clarence Whitman & Co., New York.

"Peronna." Kid Gloves. Greenhut & Co., New York.

"Brandeis." Hosiery. J. L. Brandeis & Sons, Omaha, Neb.

"Roxford." Men's Knitted Underwear. Roxford Knitting Co., Philadelphia, Pa.

"Sefco." Men's and Boys' Coats, Vests and Trousers. Frohsin & Kelly, Philadelphia, Pa.

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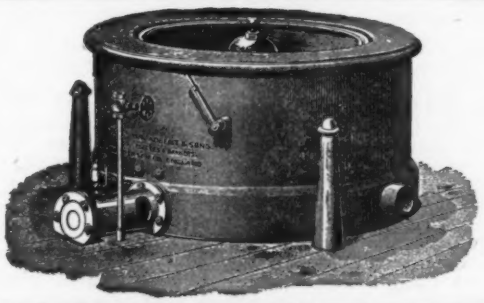

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"The Chemistry AND Practice of Finishing"

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Expert on Sizing, Dyeing and Finishing. (Author of "The Chemistry and Practice of Sizing.")

AND

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Practical Demonstrator in Bleaching, Dyeing and Finishing, at the Manchester School of Technology.

It has been more than fifteen years since a complete treatise on this subject has been offered to the Trade, and during that time there have been wonderful advances made in the Chemistry and Practice of Bleaching and Finishing.

The authors of this book have exceptional qualifications for the work. It was compiled at the request of many of their clients soon after the publication of Mr. Bean's work on Chemistry and Practice of Sizing.

The advance orders and subsequent sales in Great Britain and the Continent since its publication in the Autumn of 1905, have been so great that the American Trade could not be supplied until recently.

We have been appointed sole American Agents and have received a small invoice for immediate delivery.

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Owing to the limited available supply, we suggest that those who are likely to want a copy should order at once and avoid a long delay.

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Buyers' Index

The addresses of builders of mill machinery and dealers in mill supplies, whose names appear in the following classified index, may be found upon referring to their advertisements. The Alphabetical Index to advertisers follows this classified list. Buyers who are unable to find in the classification here given such machinery or supplies as they desire, are invited to communicate with the publishers, who can, in all probability, refer them to proper sources. Advertisers whose names do not appear under desired headings will please notify the publishers. Such omissions are accidental, not intentional.

Accounts Financed.
Cathrall, W. M.

Air Moistening System.
American Moistening Co.
Bell Pure Air & Cooling Co.
Buffalo Forge Co.

Architects and Mill Engineers.
Collins, Newman.
Ferguson, John W.

Arc Lighting (Inverted).
Toerring, C. J., Co.

Asphalt Floors.
Simpson Bros. Corporation.

Asphalt Tanks.
Scaife, W. B., & Sons.

Automatic Feeds for Cotton and Wool.
American Drying Machinery Co.
Kitson Machine Co.
Leigh, Evan A.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Schofield, Wm., Co.
Woonsocket Machine & Press Co.

Automatic Warp Tying Machines.
Barber-Colman Company.

Bale Ties.
Acme Steel Goods Co.
DeHaven Manufacturing Co.

Bandings.
——See under Yarns.

Baskets.
Lane, W. T., & Bro.

Belting.
Chicago Belting Co.
Gandy Belting Co.
Main Belting Co.
Shultz Belting Co.
——See also Mill Supplies.

Belt Dressing.
Cling Surface Mfg. Co.
Dixon, Jas., Crucible Co.
Shultz Belting Co.
Stephenson Mfg. Co.

Belt Lacing Machines.
Birdsboro Steel Foundry & Machine Co.

Bias Machines.
Adams, A. L.

Bindings.
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Bleaching Kiers.
Arlington Mch. Wks. (Arthur Birch, prop.)
Philadelphia Drying Machinery Co.
Textile Finishing Machinery Co.

Bleaching Materials.
Bosson & Lane.
Roessler & Hasslacher Chemical Co.

Blowers and Blower Systems.
American Blower Co.
Buffalo Forge Co.
Dean Bros. Steam Pump Works.
Mass. Fan Co.
Philadelphia Drying Machinery Co.
Sterling Pipe & Blower Co.
Sturtevant, B. F., Co.
Schnitzler, Chas. H.

Bobbins, Spools, Shuttles, Etc.
American Supply Co.
American Textile Specialty Mchy. Co.
Leigh, Evan A.
Tebbets, E. L., & Co.
Wilson & Co.

Bobbin Winders.
Universal Winding Co.

Boiler Inspection and Insurance.
——See Steam Boiler Insurance.

Boilers.
——See Steam Boilers.

Boxes, Cloth Boards, Etc.
Pearson, J. T.

Box Strapping.
Acme Steel Goods Co.
De Haven Mfg. Co.

Braiding Machinery.
New England Butt Co.
Textile Machine Works.

Braids.
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Brazing.
American Ferrofix Brazing Co.

Bridges.
Scaife, W. B., & Sons.

Brushers.
——See Napping Machines.

Brushes.
Felton, S. A., & Son Co.
Mason Brush Works.
Parks & Woolson Machine Co.

Burr Pickers.
Curtis & Marble Machine Co.
Sargent's, C. G., Sons.
Smith & Furbush Machine Co.

Calico Printers' Machinery and Supplies.
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Birch Bros., Somerville Machine Wks.
Butterworth, H. W., & Sons Co.
Taunton-New Bedford Copper Co.
Textile Finishing Mchy. Co.
——See also Dyeing, Bleaching, Machinery, etc.

Canvas Baskets.
Lane, W. T., & Bro.

Carbonizing Machinery.
American Drying Machinery Co.
Birch Bros., Somerville Machine Wks.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
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Schuchardt & Schuette.
Tolhurst Machine Works.

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Carded Cotton.
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Casting Repairs.
American Ferrofix Brazing Co.

Castings.
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Cell Driers.
Cell Drier Machine Co.

Cement Pans.
Scaife, W. B., & Sons.

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Yale & Towne Mfg. Co.

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Roessler & Hasslacher Chemical Co.

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Little, Arthur D.

Cling Surface.
Cling Surface Mfg. Co.

Clocks.
Pettes & Randall Co.

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Richardson Brothers.
Smythe, J. L. N., Paper Co.

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Cloth Stretchers.
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Conditioning of Textile Fabrics.
New York Silk Conditioning Works.

Consulting Electrical Engineer.
Puffer, William L.

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Sturtevant, B. F., Co.

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American Textile Specialty Mchy. Co.

Cop Tubes.
American Textile Specialty Mchy. Co.
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Copper Print Rollers.
Taunton-New Bedford Copper Co.

Coppersmiths.
Badger, E. B., & Sons Co.

Copper Work for Dyers.
Butterworth, H. W., & Sons Co.
Textile Finishing Machinery Co.

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National Brake & Clutch Co.

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Cost Systems Devised.
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Stoddard, Haserick, Richards Co.
Tolar & Hart.

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American Textile Specialty Mchy. Co.
American Drying Machinery Co.
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Curtis & Marble Machine Co.
Draper Company.

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Kilburn, Lincoln & Co.
Kip-Armstrong Co.
Kitson Machine Co.
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Lowe, S. C.
Lowell Machine Shop.
Mason Machine Works.
Parks & Woolson Machine Co.
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Providence Machine Co.
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Saco & Pettee Machine Shops.
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Woonsocket Machine & Press Co.

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Stoddard, Haserick, Richards & Co.

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Bosson & Lane.
Burckhardt & Co.
Harding & Fancourt.
Nicetown Mfg. Co.
Zurn, O. F., Co.

Cotton Waste.
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Schofield, Edwin F.

Cranes.
Northern Engineering Works.
Yale & Towne Mfg. Co.

Crayons.
Dixon, Jos., Crucible Co.
Lowell Crayon Co.

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Barber Asphalt Paving Co.

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Dextrine.
Stein, Hirsh & Co.

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Hunter, Jas., Machine Co.
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Whiteley, William, & Sons, Ltd.

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Pearson, J. T.

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Sterling Blower & Pipe Mfg. Co.
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Davidson, J. F.
Firth & Foster Co.
Germania Dye Works.
Globe Dye Works Co.
Home Bleach & Dye Works.
Lorimer's, The Wm. H., & Sons Co.
Pawtucket Dyeing & Bleaching Co.
Peerless Co.
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Schwartz, L. H. A., & Co.
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Textile Finishing Machinery Co.
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Vacuum Dyeing Machine Co.
Whiteley, William, & Sons, Ltd.

Dye House Cans.
Hill, James, Mfg. Co.

Dye House Floors.
Simpson Bros. Corporation.

Dye House Trucks.
Bailey, Frank.

Dye Sticks.
Bailey, Frank.
Haedrich, E. M.

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—See Tanks, Tubs and Vats.

Dyestuffs and Chemicals.
American Dyewood Co.
Atteaux, F. E., & Co.
Badische Co.
Berlin Aniline Works.
Bischoff & Co.
Bosson & Lane.
Cassella Color Co.
Chemische Aniline Works.
Kalle & Co.
Ford, J. B., Co.
Geisenheimer & Co.
Johnson, Chas. A., & Co.
Klipstein, A., & Co.
Leyland, Thos., & Co.
Metz, H. A., & Co.
Roessler & Hasslacher Chemical Co.
Sykes, Walter F., & Co.
Thayer, Ed. M., & Co.

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Edgings.
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Electrical Construction.
Crocker-Wheeler Co.
General Electric Co.
Sturtevant, B. F., Company.
Westinghouse Electric & Mfg. Co.

Electrical Engineer (Consulting.)
Puffer, William L.

Electrical Heating Devices.
Crocker-Wheeler Co.

Electrical Supplies.
Pettingell-Andrews Co.

Electric Driven Pumps.
Dean Bros. Steam Pump Works.

Electric Fans.
American Blower Co.
Buffalo Forge Co.
Crocker-Wheeler Co.
General Electric Co.
Mass. Fan Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sterling Blower & Pipe Mfg. Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

Electric Hoists.
Crocker-Wheeler Co.
Northern Engineering Works.
Yale & Towne Mfg. Co.

Electric Lamps.
Pettingell-Andrews Co.

Electric Lighting.
Buffalo Forge Co.
Crocker-Wheeler Co.
General Electric Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

Electric Motors.
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Elevators.
Salem Elevator Works.

Embossing Machines.
Cameron Machine Co.

Employees' Time Recorders.
Pettes & Randall Co.

Engine Repairs.
Fishkill Landing Machine Co.

Exhaust Heads.
Buffalo Forge Co.
Sterling Blower & Pipe Mfg. Co.
Sturtevant, B. F., Co.

Expansion Joints.
Power Specialty Co.

Fans—Exhaust and Ventilating.
—See Ventilating Apparatus.

Feed Water Heaters.
Scaife, W. B., & Sons.

Feed Water Pumps.
Dean Bros. Steam Pump Works.
Goulds Mfg. Co.

Feed Water Purifiers.
American Water Softener Co.
Dodge Mfg. Co.
Harrison Safety Boiler Works.
Philadelphia Water Purification Co.
Scaife, W. B., & Sons.

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Felt Hardeners.
Farrel Foundry and Machine Co.

Felting Machinery.
Farrel Foundry and Machine Co.

Fibre Spools.
Cell Drier Machine Co.
Rhode Island Fibre Spool Co.

Filters.
American Water Softener Co.
Hungerford & Terry.
Norwood Engineering Co.
Phila. Water Purification Co., The.
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Borgner, Cyrus, Co.

Fire Extinguishers.
Badger, E. B., & Sons Co.

Fire Hose.
Eureka Fire Hose Co.

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STURTEVANT

Mechanical Draft

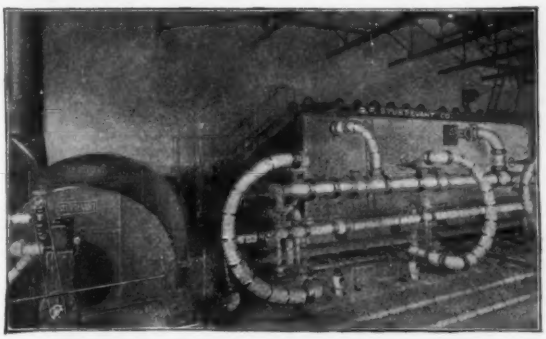
Cost is from 20 to 40 per cent of that of a chimney.

Permits of the burning of finely-divided or low-grade fuel.

Is independent of the weather.

Is automatically regulated to maintain constant steam pressure.

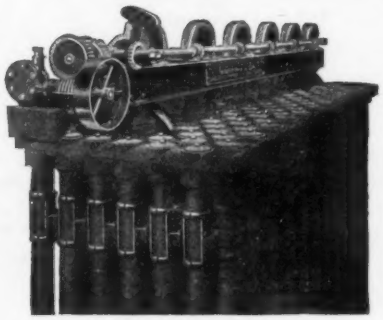
Increases the capacity of an existing plant.



Serves as an auxiliary to a chimney already overburdened.

Saves space and is portable.

Sturtevant Fuel Economizers



Will earn 50 per cent on the investment if operated but 10 hours per day.

Patented Driving Mechanism insures Scrapers moving whenever belt is running; no possibility of sticking.

All joints Metal-to-Metal. As now built not a gasket is used.

Economizer can be installed with a Chimney or with Mechanical Draft Apparatus.

Send for Catalogue No. 130.

B. F. STURTEVANT CO., BOSTON, MASS.

General Office and Works, Hyde Park, Mass.

NEW YORK PHILADELPHIA CHICAGO CINCINNATI LONDON

Designers and Builders of Heating, Ventilating, Drying and Mechanical Draft Apparatus; Fan Blowers and Exhausters; Rotary Blowers and Exhausters; Steam Engines, Steam Turbines, Electric Motors and Generating Sets; Pneumatic Separators, Fuel Economizers, Forges, Exhaust Heads, Steam Traps, etc. 661

Fire Hydrants.
Norwood Engineering Co.

Fire Insurance.
Home Insurance Co.

Fire Proof Doors and Windows.
Badger, E. B., & Sons Co.
Irwin, Thos. W., Mfg. Co.

Flax, Tow, Hemp and Jute Machinery.
Fairbairn-Lawson-Combes-Barbour, Ltd.

Fluted Rolls.
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Sturtevant, B. F., Co.

Forwarders.
Salvator Transfer, Inc.

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Hunter, Jas., Machine Co.
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Walworth Manufacturing Co.

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New Process Raw Hide Co.
Philadelphia Gear Works, Inc.

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Farrel Foundry and Machine Co.

Gear Cutting Machine.
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Generating Sets.
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Cook's, Adam, Sons.

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Cross Creek Coal Co.

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Krout & Fite Mfg. Co.
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Paxton & O'Neill.
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Whitin Machine Works.

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Beattie Machine Works.
Hepworth, John W., & Co.
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Cook's, Adam, Son.
Borne, Scrymser Co.
Dixon, Jos., Crucible Co.

Lubricators.
Cook's, Adam, Son.
Detroit Lubricator Co.
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Elliott & Hall.
Parks & Woolson Machine Co.

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Mechanical Engineers.
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Buffalo Forge Co.
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Main, Chas. T.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.

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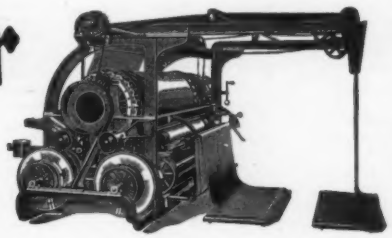
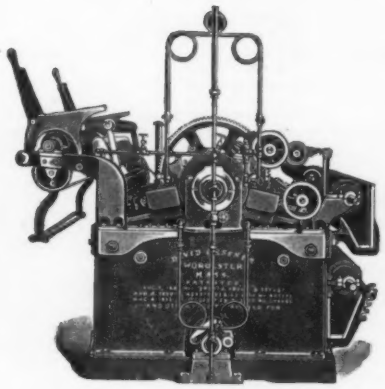
Globe Dye Works Co.
Home Bleach & Dye Works.
Lorrimer, Wm. H., Sons Co.

Alphabetical Advertising Index, with page numbers, follows this list.

David Gessner

Worcester, Mass.





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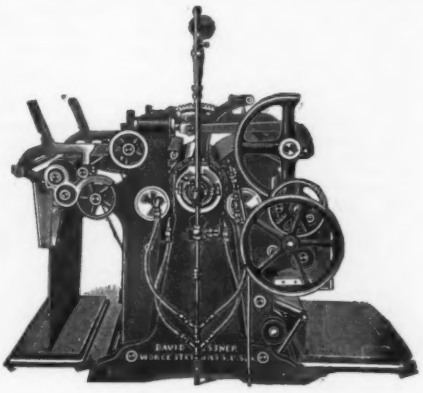

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Buhlmann, A. W.

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Winders (Hosiery).
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Barker, James.
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Birch Bros., Somerville Machine Wks.
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Fales, L. F.
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Hood, R. H.
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Hunter, Jas., Machine Co.
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Superintendent and Designer or boss weaver in a woolen mill. 48 years of age, married, American. Has had several years of experience on fancy cassimeres, kerseys, meltons and dress goods. Could take a position at once. 4537, Textile World Record, Boston, Mass.

Manager or superintendent of a worsted mill. Position wanted by a man 33 years of age, married and English. Is experienced on all grades of wool and hair, and is familiar with all makes of worsted machinery. First-class references. 3596, Textile World Record, Boston, Mass.

Superintendent Woolen or knitting mill. Position wanted by a man 40 years of age, American, married. Has had a wide experience on all kinds of woolen and worsted goods. Familiar with the American and English machinery. Good references. 3882, Textile World Record.

Manager or Superintendent of a woolen mill. Position wanted by a man, 50 years of age, Scotch, married. Worked on woolen and worsted goods, men's and women's wear, beavers, face finished goods. Twelve years as manager in his present position. Will be open for engagement about April 1st. 3862, Textile World Record, Boston.

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Superintendent or Assistant Superintendent in a large woolen mill. Position wanted by a man 52 years of age, married, English. Has worked on unions, satinets, cheviots, thibets, cloakings, overcoatings, dress goods, beavers and all kinds of woolen goods. Familiar with all kinds of woolen machinery. Good reference. 3776, Textile World Record, Boston.

Superintendent in a Woolen Mill or overseer of finishing in a large woolen mill. Position wanted by a man, 50 years of age, American, married. Has had a wide experience in large mills as superintendent; previous to taking up this end, was overseer of finishing in large mills. First-class recommendations. 3762, Textile World Record. Boston.

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DESIGNERS.

Designer or Superintendent. 31 years of age, English. Worked on all kinds of woolen and worsted men's and women's wear. Familiar with the English and American looms. Good reference. 4556, Textile World Record, Boston, Mass.

Designer in a Woolen or worsted mill. Position wanted by a married man, 35 years of age, English. Worked on men's suitings, trouserings, rain cloths and ladies' dress goods. Familiar with the English, Crompton & Knowles looms. Will not go to Canada. Good reference. 4552, Textile World Record, Boston, Mass.

Designer on Jacquard Work. 36 years of age, married. Worked on brocades, fancy stripes, silk, worsted and cotton goods. Could take a position at once. Will not go West, South, or Canada. 4535, Textile World Record, Boston, Mass.

Assistant Designer or assistant chemist in a silk or cotton mill. 22 years of age, a graduate of a textile school. Has never held a responsible position in this country. Would accept reasonable wages in order to get a start. Has a diploma from school. 4542, Textile World Record, Boston, Mass.

Assistant Designer. 27 years of age. Worked on suitings, cassimeres, overcoatings, etc. Familiar with Knowles looms. Wants a position in the N. E. States. Good reference. 4536, Textile World Record, Boston, Mass.

Designer, assistant designer or assistant superintendent. German. Woolen and worsted men's wear and ladies' dress goods. Experienced in Germany and a short time in this country. 3166, Textile World Record.

Assistant Designer. Position wanted by a young man 20 years of age. Has had two years' experience as assistant designer and pattern weaver. Worked on fancy worsted and piece dyed. Looking for a position where he can advance himself. First class references. 3877, Textile World Record.

Designer or superintendent. Ginghams, crepe, jacquards, cycle tires, filter cloth, vesting cloth, etc. Good recommendations. Middle aged man; English; married. 3169, Textile World Record.

Designer or Assistant Superintendent in a woolen mill. Position wanted by a man, 38 years of age, married, American. Worked on all kinds of worsteds, woolens and dress goods. Could accept a position at short notice. Good references. 3865, Textile World Record, Boston.

Designer or Assistant Superintendent of a worsted or woolen mill. Position wanted by a man, 25 years of age, single. Has worked on fancy and cotton worsteds and woolens of all kinds. Has had seven years' practical experience in different departments of worsted and woolen mills. Good references. Could accept a position at once. 3851, Textile World Record, Boston.

Assistant Designer in woolen mill. Position wanted by a man 21 years of age, American, single. Worked on woolen and worsted goods. Good references. Wants New England States only. 3976 Textile World Record.

Designer or Overseer of weaving, or boss dresser. Position wanted by a man 24 years of age, American, married. Has worked on cotton worsted. Familiar with Crompton & Knowles looms. Good references. Could take position at once. 3913, Textile World Record, Boston.

Designer or assistant superintendent. Worked on cotton warp flannel coverts, plain and fancy cotton warp, and all wool dress goods. First-class references. 3244, Textile World Record.

KNITTERS.

Manager or Superintendent of a knitting mill. 40 years of age, American. Has worked on high grade underwear of all kinds. Is a practical mechanic. Understands the manufacturing in all branches. Familiar with all makes of latch needle and sewing machines, bleaching and dyeing. Good references. 4538, Textile World Record, Boston, Mass.

Manager or Superintendent of a hosiery or underwear mill. Will be open for a position about March 1st. Understands the manufacture of seamless cutting hosiery, ladies', men's and children's underwear. Has had 20 years of experience in knitting mills and can refer any parties interested to manufacturers whom he has worked for. 4529, Textile World Record, Boston, Mass.

Superintendent of an underwear or hosiery mill. 31 years of age. Worked on ladies' shaped ribbed and men's and children's ribbed underwear. Also men's, women's and children's hosiery. Familiar with the Nye & Tredick, Stafford & Holt, Brinton, Scott & Williams, Union Special and Merrow machines. Good reference. 4534, Textile World Record, Boston, Mass.

Overseer of Knitting in a small mill or second hand in a large mill. 22 years of age, single. Worked on balbriggans, single and double, and fleece lined. Familiar with Tompkins, Campbell & Clute and Payne winders. Could take a position at short notice. Good reference. 4539, Textile World Record, Boston, Mass.

Overseer of Knitting or hosiery machine fixer or foreman in the finishing department. Position wanted by a man 25 years of age, single. Has worked on fine cotton and mercerized hosiery. Would prefer a position on Jenckes Invincible machines, but has a good knowledge of Scott & Williams, Wildman, Geo. D. Mayo, Acme and Brinton footers. 4541, Textile World Record, Boston, Mass.

Superintendent or boss knitter. 30 years of age, married. Worked on men's plain and plaited fancy hose, ladies' plain and lace and misses' ribbed hosiery. Familiar with the Geo. D. Mayo, Acme, Paxton & O'Neil, Standard footers; McMichael and Wildman, Brinton ribbers and different makes of welters and loopers. Good reference. 4549, Textile World Record, Boston, Mass.

Superintendent, or Overseer of Knitting in a Hosiery Mill. Position wanted by a man 33 years of age, single, has worked on ladies', men's and misses' wool, worsted and cotton seamless hosiery on Wildman, Scott & Williams, Ruth and Brinton ribbers, Hepworth and Beatley loopers, Acme and Geor. D. Mayo automatic foot machine. Good recommendations. 3698, Textile World Record.

Overseer of Knitting. Position wanted by a man 39 years of age, married. Worked on double and single plush, plain single thread wool; worked on spring needle, also run wool and cotton on latch needle machines, Thompkins spring, Snyder, Fisher, McMichael & Wildman, Stafford, Holt latch needle, Payne, Tompkins winders. Good reference. 4073, Textile World Record, Boston, Mass.

Second Hand in Knitting Mill. Position wanted by a man 21 years of age, American. Worked on all kinds of goods on latch needle machines. Familiar with the following makes of knitting machines: Nye & Tredick, McMichael & Wildman, Scott & Williams, H. Brinton & Co., Stafford & Holt. Could take a position at two weeks' notice. Good references. 3975 Textile World Record.

Overseer of Knitting. Position wanted by a man 30 years of age, single. Worked on ladies' and gents' ribbed goods, shaped and plain. Familiar with Tiffany & Cooper cuff machines, Campbell & Clute machines, Scott & Williams, Smith & Fisher latch needle knitting machines. Will accept a position in New York state only. Good references. 3964 Textile World Record.

Superintendent or Overseer of Knitting. First-class man with a quarter of a century experience in some of the largest and best mills in the country. Has always succeeded in reducing waste and increasing quality and quantity of production. Familiar with spring needle circular machines on eiderdowns, stockinets, jerseys, fleeces and astrachans. Has several improvements on knitting machines. Age, 38 years, and married. Good reference. 4087, Textile World Record, Boston, Mass.

SPINNERS.

Overseer of Spinning or twisting. 38 years of age. Has had a wide experience in the manufacture of linen threads and yarns, both wet and dry spinning. Familiar with all classes of twisting and carding machines and preparing. First class recommendations from leading firms. 4528, Textile World Record, Boston, Mass.

Overseer of Woolen Spinning. Position wanted by a man, 55 years of age, American, married. Familiar with J. & B. mules. Good reference. 3797, Textile World Record, Boston, Mass.

Overseer of Woolen Spinning. Position wanted by a married man 44 years of age. Worked on all kind of yarns on Platt mules, D. & F. J. & B. and Tatham machines. First class reference. Could take position at short notice. Will not go South, West or Canada. 4076, Textile World Record, Boston, Mass.

Overseer Woolen Spinning. Position wanted by a man 45 years of age, married, worked on woolen goods made of wool shoddy and cotton mixes; good references; take position at short notice. 4044. Textile World Record, Boston.

Overseer of Spinning. Position wanted by a man 30 years of age; English. Has worked all kinds of stock, cotton, wool and shoddy, from 5/8 run to 13 and is familiar with Davis & Furber mules and operators. Good references. 3595, Textile World Record, Boston, Mass.

Overseer of Woolen Spinning. Position wanted by a man 40 years of age, widower, worked on all kinds of yarns, wool, cotton and shoddy mixed. Familiar with the J. & B. and D. & F. machines. First class recommendations. 3720, Textile World Record.

Boss Spinner in a woolen mill. 32 years of age; American; familiar with Davis & Furber, Johnson & Bassett and English mules and twisters. First-class references. 3275, Textile World Record.

Overseer of Woolen Spinning. Position wanted by married man, 28 years of age; worked on all kinds of wool, cotton and shoddy mix goods on J. & B. mules. Good reference. Will not go West, South or Canada. 4083, Textile World Record, Boston, Mass.

Overseer of Spinning or carder and spinner in a small woolen mill. Position wanted by a man 55 years of age, married, American. Has worked on all kinds of wool, shoddy and cotton mixes, yarns from 1/2 to 10 run. Familiar with D. & F., J. & B., Whitley, Smith & Molton mules. Good reference. Will not go South or Pennsylvania. 3933, Textile World Record.

Overseer of Woolen Spinning in a small mill, or Fixer in a large mill. Single, 38 years of age. Has worked on all kinds of stock, cotton, wool and shoddy mixes. Familiar with J. & B. and D. & F. operators and mules. Could take a position at once. Good reference. 4092, Textile World Record, Boston, Mass.

Overseer of Spinning. American, with experience on nearly all classes of woolen and worsted goods, and on all machinery used in his work, wants position in the East. Best of references furnished. Wants first-class position. 3384, Textile World Record.

Overseer of Spinning in Woolen Mill. Position wanted by a married man, 40 years of age. Is familiar with Davis & Furber and Johnson & Bassett mules and operators and Wright's frames. Good reference. 4086, Textile World Record, Boston, Mass.

Overseer of Woolen Spinning or carder and spinner. Position wanted by a man 45 years of age. American, married. Worked on all classes of woolen goods. Familiar with all makes of mules and cards. Prefers a position in Mass., R. I., Conn. or N. H. Good references. 3943, Textile World Record.

Overseer of Spinning in a woolen mill. Position wanted by a man 47 years of age, married. Has worked on fancy cassimeres, dress goods, flannels, satinets, kerseys, broadcloths, blankets, etc. Familiar with D. & F., J. & B., Paul and Bancroft mules. Will not go West, South, Canada, Pennsylvania or New Jersey. Good references. 3994 Textile World Record.

COTTON WEAVERS.

Overseer of Weaving or second hand in a cotton mill. 25 years of age, married, American. Worked on twills, sheetings, ducks, lenos, shirtings and motor tire fabrics. Good reference. 4545, Textile World Record, Boston, Mass.

Overseer of Weaving or designer. **Lawns, sheetings, twills, sateens, quilts, bedford cords, lappets.** A young man; unmarried. Good experience and first-class recommendation. 3068, Textile World Record.

Overseer of Cotton Weaving. Position wanted by a man, 27 years of age, American, married, with experience on prints, cambrics, sateens, drills, corded goods, etc. Worked on Draper, Whitin, Lowell, Mason and Colvin looms. Prefers a position in the East. 3430, Textile World Record, Boston, Mass.

Overseer of Weaving. Worked on sheetings, twills, sateens and fancies. Wants not less than $18 per week. 3157, Textile World Record.

Overseer of Cotton Weaving. Married, 38 years of age. Has worked on sateens, plain and fancy cotton goods. Is familiar with Whitin, Crompton & Knowles and Mason looms and could take a position at once. Good reference. 4090, Textile World Record, Boston, Mass.

Overseer of Cotton Weaving, or Assistant Superintendent. 42 years of age, married. Has worked on all kinds of cotton goods, coarse and fine, plain and fancy. Is familiar with all kinds of looms and an expert on Draper automatic looms. Good reference. Could take a position at once. 4089, Textile World Record, Boston, Mass.

Overseer of Weaving, Assistant Superintendent, or superintendent in a cotton mill. Position wanted by a man 46 years of age, married, American. Worked on prints, sheetings, shirtings, ducks, dress goods, leno, Jacquards, cottons from 4s to 113s warp, and 2.80 to 120 filling. Also on silks from 60s to 345s. Familiar with Lowell, Whitin, Draper, Mason, Lewiston, Knowles, Woonsocket, Colvin looms. Will not go to New York, New Jersey, Pennsylvania, West or South. Good references. 4014 Textile World Record.

Overseer of Weaving or general second hand in a cotton mill. Position wanted by a man, 28 years of age, American, married. Worked on twills, sheetings, drills, sateens, etc. Familiar with Mason, Colvin, Whitin & Draper looms. Good references. 3548, Textile World Record, Boston.

Overseer of Weaving in a cotton mill. Position wanted by a man 27 years of age, American. Worked on plain, twills, sateens, fancies, lenos, flannels, etc. Familiar with Crompton & Knowles, Whitin, Lowell and Mason looms. Good references. 3968 Textile World Record.

Overseer of Weaving in a cotton mill, or second hand in a large mill. Position wanted by a man 22 years of age, married. Has worked on plain, sateens, twills and fancy. Some experience on lenos. Familiar with Whitin, Colvin, Mason, Lowell, Lewiston, Crompton & Knowles looms, electric stop motion. Good references. 3916, Textile World Record, Boston.

Overseer of Cotton Weaving. Position wanted by a man, 39 years of age, American, married. Worked on all kinds of cotton goods, plain and fancy. On English, Colvin, Mason, Whitin and Draper looms. Could take a position at two weeks' notice. First class recommendations. 3735, Textile World Record, Boston, Mass.

Overseer of Weaving or Cloth Room. Worked on heavy ducks, denims, suitings, checks, lenos, fancy lenos and lappets, from 2s to 200s yarn carded and combed. Familiar with Lowell, Whiting, Crompton & Knowles, Mason and Draper looms. First-class recommendations, 34 years of age, married, American. 3309, Textile World Record, Boston, Mass.

Overseer of Weaving. Position wanted by a man 28 years of age and married. Worked on fancy shirtings, lenos, silk dress goods, lappets and plain goods. Familiar with Jacquard machines, Mason, Crompton & Knowles and Stafford dobbies, looms. 3474, Textile World Record, Boston.

COTTON CARDERS.

Overseer of Cotton Carding, or General Second Hand in a large mill. Married man, 34 years of age. Has worked on all kinds of fine and coarse combed yarns. Understands all kinds of cards, speeders and is an expert on combers. Good reference. Will not go South, West or Pennsylvania. 4096, Textile World Record, Boston, Mass.

Overseer of Cotton Carding. Position wanted by a man, 33 years of age, American, married. Has worked on carded and combed hosiery yarn, colored yarns and warps. Familiar with American carding and combing machinery. Good references. 3864, Textile World Record, Boston.

Overseer of Cotton Carding. Position wanted by a man 40 years of age, English, married. Worked on Egyptian, Peeler, carder, combed and bleached cotton. Familiar with American and English carding machinery. Could accept a position at short notice and reasonable wages. Good reference. 3827, Textile World Record, Boston, Mass.

Assistant Superintendent or overseer of carding in a large mill. Position wanted by a man 47 years of age, married. Worked on lawns, sateens, upholstery and fancy cotton goods of all kinds. Has had a wide experience as overseer of carding, and a number of years as superintendent. Will not go to New Jersey, West, South or Canada. Will take position within reasonable notice. Good references. 3967 Textile World Record.

Overseer Cotton Carding or Spinning desires position. Age 47; American; married. Is familiar with all the modern makes of English and American machinery, revolving top flat cards, single and double carding. 2078, Textile World Record.

Overseer of Carding. Has held all positions in picker and card rooms. White and colored goods, 6s to 40s. 3070, Textile World Record.

Overseer of Carding and spinning. Position wanted by a man 40 years of age, married. Is experienced on all kinds of stock and all numbers of yarn. Is familiar with Davis & Furber, Johnson & Bassett, Furbush, and Bridesburgh carding and spinning machinery. Good references. 3580, Textile World Record, Boston, Mass.

Overseer of Carding. Position wanted by a man 43 years of age, married and American. Has worked on print cloth, cambrics, sheetings, etc., all white cotton. Is familiar with American and English carding machinery. First-class references. 3599, Textile World Record, Boston, Mass.

Overseer of Carding in a cotton mill, or position as superintendent in a small weave mill by a man 35 years of age, married, American. Worked on yarns 75s to 200s, filling 28s to 50s warp. All kinds of carding machinery. Will not go West, South or Canada. Good references. 3906, Textile World Record, Boston.

Overseer of Cotton Carding in a large mill or carder and spinner in a small mill. Position wanted by a man, 35 years of age, American, married. Worked on white and colored work, both fine and coarse numbers. Familiar with all kinds of carding machinery. Good reference. 3784, Textile World Record, Boston, Mass.

Overseer of Carding in cotton mill. Position wanted by a man 39 years of age, single. Worked on all kinds of cotton goods, Sea Island, combed and carded, from 24s up to 150s. Familiar with American and English carding machinery. Good references. 3941, Textile World Record.

Overseer of Carding or Spinning in a cotton mill. Position wanted by a man 39 years of age, married, American. Worked on white and colored goods. Familiar with Whitin and Lowell machines. Will not go to Canada, New York, New Jersey or New England States. Good references. 3997 Textile World Record.

Overseer of Carding. Position wanted by a man 31 years of age and married. Has worked on kerseys, meltons, beavers, ladies' dress goods, men's suitings, all kinds of knit goods, and thoroughly understands all kinds of mixes and stock. Is familiar with all kinds of woolen carding machinery. Good references. 3530, Textile World Record, Boston, Mass.

WOOLEN WEAVERS.

Overseer of Weaving or second hand in a woolen mill. 38 years of age, married. Worked on wool and worsteds of all kinds, high and low grade, fancy and plain. Familiar with Crompton & Knowles looms. Good reference. Will not go West, South or Canada. 4548, Textile World Record, Boston, Mass.

Overseer of Weaving or second hand in a woolen mill. Married man, 34 years of age, American. Worked on broad cloths, sackings, covert cloths, suitings, kerseys, beavers, rain cloths and bed blankets. Familiar with Crompton & Knowles and Davis & Furber looms. Prefers a position in New England. Good reference. 4554, Textile World Record, Boston, Mass.

Assistant Superintendent, or Boss Weaver in a Woolen Mill. Position wanted by a married man, 28 years of age. Worked on all kinds of woolen goods, including cassimeres, suitings, dress goods, kerseys, thibets, meltons. Understands the Crompton & Knowles looms, has had experience in the carding and spinning room. A graduate of the ence. 4043, Textile World Record, Boston. International Correspondence School. Good refer-

Overseer of Weaving in a Woolen Mill. Position wanted by a man 42 years of age, married, American. Worked on cotton, worsteds, woolens, dress goods and fancy worsteds. Familiar with Crompton & Knowles looms. Will not go west, south or Canada. Good references. 4035, Textile World Record, Boston.

Asst Supt. or Overseer of Weaving. Position wanted by a man 50 years of age, married and American. Has worked on kerseys, beavers, cheviots, overcoatings, meltons, etc., and is familiar with all kinds of woolen machinery. First-class references. 3528, Textile World Record.

Overseer of Weaving. Position wanted by a man 32 years of age and married. Has worked on woolen dress goods, suitings, cotton worsteds, worsted dress goods, kerseys, beavers and blankets. Is familiar with Crompton, Knowles, Furbush, Davis & Furber looms and dobby looms. Has first-class recommendations. 3544, Textile World Record.

Overseer of Weaving in a woolen mill. Position wanted by a man 39 years of age, married, American. Familiar with dress goods, men's wear, cotton worsteds, kerseys, cloakings, etc. Familiar with Knowles & Crompton and Andover looms. Good references. Will not go to Pennsylvania, New York, New Jersey, West, South or Canada. 3959 Textile World Record.

Overseer of Woolen Weaving. Position wanted by a man 44 years of age, American, married. Worked on worsted and woolen goods of all kinds, also dress goods. Has one spooler, one sewer and one hander-in in the family. Could take position at short notice. Will not go West, South, New Jersey, New York or Canada. Good references. 3887, Textile World Record.

Overseer of Weaving in a woolen mill. Position wanted by a man 26 years of age, American. Worked on plain and fancy worsteds, cotton worsteds, dress goods, cassimeres, kerseys, venetians, flannels, etc. Familiar with Knowles, Crompton, Thayer looms. Will not go to Pennsylvania, New Jersey, South or Canada. Good references. 3981 Textile World Record.

Overseer of Woolen Weaving. Position wanted by a man 36 years of age; married. Has worked on satinets, unions, cassimeres, men's wear, dress goods, overcoatings and blankets. Is familiar with Knowles, Gilbert, Stafford and Crompton looms. First-class references. 1790, Textile World Record, Boston, Mass.

Overseer of Weaving, or weaver and designer. American, 40 years of age, with experience on all grades men's wear and all makes of woolen looms, pickers, spoolers, twisters, etc., wants a position in the East. 3379, Textile World Record.

Boss Weaver in Woolen Mill, or would accept a good loom fixing position. Worked on satinets, cotton and woolen warp goods, sheetings, shirtings and ducks. Also worked on cotton and woolen jute bagging. 45 years of age. 1806, Textile World Record.

WOOLEN CARDERS.

Second Hand in woolen card room. Married man, 32 years of age. Worked on all kinds of stock, cotton wool and shoddy mixes. Good reference from leading mills. Could take a position at once. 4532, Textile World Record, Boston, Mass.

Overseer of Woolen Carding. 48 years of age, married, American. Worked on all kinds of woolen, cotton and shoddy mixed goods. Exceptionally good man on low stock. Good reference. Has had 22 years of experience in the card room. 4530, Textile World Record, Boston, Mass.

Overseer of Carding in woolen or hosiery mill. Position wanted by a man 35 years of age, married, American. Worked on all classes of goods and all kinds of stock. Familiar with all kinds of American and English cards, and all kinds of condensers and feeds. Will not go West, South or Canada. Good references. 3988 Textile World Record.

Overseer of Carding. Position wanted by a man 34 years of age and married. Has worked on outing flannels, suitings, cassimeres, overcoatings, crashes, meltons, skirtings, kerseys, doeskins, broadcloths, coverts, cheviots and thibets. Is familiar with Davis & Furber, Cleveland, English cards and garnett machines. Good references. 3513, Textile World Record, Boston, Mass.

Overseer of Woolen Carding. Position wanted by a man, 47 years of age, American, married. Has handled all kinds of stock, cotton, wool and shoddy mixes on yarns from 1 to 6 run. Has been employed for a number of years in leading mills. First class reference. 3815, Textile World Record, Boston, Mass.

Overseer of Woolen Carding. Position wanted by a man, 39 years of age, married, American. Has worked on wool, shoddy and cotton mixed goods, dress goods, kerseys, overcoatings, cassimeres, etc. Familiar with D. & F. carding machinery. Good reference. 1766, Textile World Record, Boston.

Overseer of Carding in a woolen mill. Position wanted by a man 42 years of age, married, American. Worked on kerseys, dress goods, cassimeres, high and low stock. Familiar with all kinds of American machinery. Good references. 4005 Textile World Record.

Overseer of Woolen Carding. Position wanted by a man, 33 years of age, married, American. Worked on all kinds of cotton, shoddy and wool mixed goods. Familiar with all kinds of woolen carding machinery. Will not go west, south or Canada. Could take a position at short notice. Good reference. 3774, Textile World Record, Boston.

Overseer of Woolen Carding. Position wanted by a man, 35 years of age, married, American. Worked on cotton, wool and shoddy mixes and is familiar with very low stock, all kinds of woolen cards, Barker condensers. Good reference. 3800, Textile World Record, Boston, Mass.

Overseer of Woolen Carding. Position wanted by a man 56 years of age; married; American. Is experienced on all kinds of stock and is familiar with any make of carding machinery. Good references. 3608, Textile World Record, Boston, Mass.

Overseer of Woolen Carding. Position wanted by a man 39 years of age, married. Worked on all kinds of goods. Familiar with all kinds of machinery. Two workers in the family. Will not go West, South, Canada or Pennsylvania. Good references. 3987 Textile World Record.

Overseer of Carding. American, 36 years of age, with 6 years' experience as overseer. Has been working in large mills in Massachusetts and brings good references. Worked on all grades wool, cotton and shoddy mixes. Good manager of help and would consider a first-class second hand's position. 3375, Textile World Record, Boston.

Overseer of Carding in a woolen mill, or carder and spinner. Position wanted by a man 34 years of age, single, American. Worked on all grades of woolen, shoddy and cotton, from 1/2 to 6 1/4 run. Familiar with all makes of cards and condensers, D. & F. and Furbush mules. Will not go to Canada, or to Western or Southern States. Good references. Could accept a position at short notice. 3952, Textile World Record.

DYERS.

Overseer of Dyeing. Position wanted by a man 48 years of age, American, married. Has worked on raw stock, piece dyes, yarns and blue vats. Worked in some of the leading mills for a number of years. Could take a position at short notice. 3835, Textile World Record, Boston, Mass.

Overseer of Dyeing. Position wanted by a man 39 years, American, married. Has worked on union and wool kerseys, cotton warp, meltons, raw stock, cotton yarns, worsted yarns, piece dye. Will not go West, South or Canada. Good references. 3,838 Textile World Record.

Overseer of Dyeing. Position wanted by a man, 37 years of age, Scotch, married. Has worked on sulphur blacks, indigo, alizarine, warps of fancy shades, raw stock, and skein yarns. Is familiar with Klauder & Weldon and Scotch tubs. Good references. Could take a position at short notice. 3842, Textile World Record, Boston.

Overseer of Dyeing. Position wanted by a man 35 years of age, American, married. Has worked on cotton and worsted yarns and worsted piece dyes. Good references. Could take position at once. 3886, Textile World Record.

Overseer of Dyeing. Position wanted by a man 36 years of age. Worked on all kinds of woolen goods, raw stock, piece dyes and yarns. Good references. Could take a position at once, on account of the mill being closed. 3955 Textile World Record.

Second Hand in Dye House, chemist or color mixer. Position wanted by a man 23 years of age. Has worked on cotton piece goods, yarns, raw stock, worsted yarns, wool piece dyed. Familiar with Jigs, Klauder and Weldon. Will go anywhere. Can take position at once. Good references. 3917, Textile World Record, Boston.

Bleacher and Dyer of cotton knit goods. Position wanted by a man 27 years of age, married. English. Has worked on web dyeing and bleaching, also garnet dye and bleaching, aniline black on hosiery. Will not go south. Good reference. 3763, Textile World Record, Boston.

Superintendent of Bleach or Dye Works, or would consider overseer in any department. Worked on sheetings, shirtings, cambrics, lawns, quilts, prints and linens. No knowledge of yarns. 38 years of age. Scotch; married. 1620, Textile World Record.

Overseer of Dyeing. Position wanted by a man, 35 years of age, married, English. Has had a thorough training in chemistry. Has worked on wool, cotton and shoddy raw stock, piece dyes, yarn bleaching, scouring, extracting, etc. Familiar with alizarine colors, all kinds of dyeing and scouring machinery. First class recommendations. 3736, Textile World Record, Boston, Mass.

Chemist or Boss Dyer on hosiery or cotton goods. Worked on hosiery, underwear, yarns and cotton raw stock. Familiar with all kinds of dyeing machinery; 27 years of age; American; first-class recommendations. 3289, Textile World Record, Boston, Mass.

Overseer of Dyeing. Position wanted by a man 30 years of age, American. Has worked on worsted and cotton yarns, mercerized piece dyes, fast shades on raw stock and slubbing. Is familiar with all kinds of dyeing machinery. Good references. 3592, Textile World Record, Boston, Mass.

Overseer of Dyeing. Position wanted by a man 32 years of age, married. Makes a specialty of fast black on hosiery and yarns, rumble and silk finish, also fancy colors and bleaching. Is familiar with all kinds of machinery used in hosiery and yarn dyeing. Good references. 3559, Textile World Record, Boston, Mass.

Overseer of Dyeing. Position wanted by a man 51 years of age, married, with A-1 references. Worked on stock for Traction and Army goods, Wood and Bisulphate Vats, Natural and Synthetical Indigo, also stock for cassimeres, blankets, robes, shawls, cotton, wool, shoddy mixes, cotton warps, mercerized effects. 3692, Textile World Record.

Dyer. Worked on all classes of goods, woolens, worsteds, yarn, piece dyes, slubbing, blue vats and cotton mixes. An American; married. 3085, Textile World Record.

DYERS.

Overseer of Dyeing in a woolen mill. 28 years of age, single. Worked on piece dyes, skein yarns, slubbing, raw stock, underwear, carriage cloths and rags. Understands all kinds of machinery. Good reference. 4555, Textile World Record, Boston, Mass.

Color Mixer or Dyer. 53 years of age. Has worked on carpet yarns mostly, also plushes, fur hats, etc. First class recommendations from leading mills where last employed. Could take a position at short notice. 4531, Textile World Record, Boston, Mass.

Second Hand in dye house. Position wanted by a young man 22 years of age. Graduate in chemistry and dyeing in textile school. Has had four years' experience in mills, two as second hand, two as overseer of dyeing. Worked on men's, ladies' worsted piece dyes, stock and worsted and cotton yarns. Good reference. 4546, Textile World Record, Boston, Mass.

Boss Dyer and Finisher. Familiar with silk, cotton, wool, underwear; also shirtings, scouring, fulling and bleaching. First-class recommendations. 928, Textile World Record, Boston, Mass.

Boss Dyer. Worked on cotton and wool and mixed stock, yarns and piece goods, hosiery, slubbing and raw stock; also scouring of wool; first-class recommendations; 28 years of age; single; English. 3327, Textile World Record, Boston, Mass.

Overseer of Dyeing in a woolen mill, or dyeing and finishing in a felt mill. Position wanted by a man 31 years of age, married. Has worked on all kinds of cotton, wool, shoddy mixes, raw stock, yarns cotton and wool, piano felts, chest protectors and hot felts. Good references. Could take position at once. Will go anywhere. 3911, Textile World Record, Boston.

Boss Dyer. Position wanted by a man 29 years of age, married. Has worked on cotton, wool and shoddy, raw stock, piece dye, silk noiles, cotton and worsted yarns. Can show bright shade on shoddy fast fulling, acid, aniline and sulphur colors. Good references. 3914, Textile World Record, Boston.

Boss Dyer in a Woolen Mill. Position wanted by a man 23 years of age, married, American. Worked on worsteds and woolens, raw stock, skein and piece goods. Familiar with Klauder & Weldon machines for yarn. Will not go South. Good references. 4036 Textile World Record, Boston.

Overseer of Dyeing and starching cotton piece goods. Position wanted by a man who has had a wide experience on all kinds of cotton piece goods, is familiar with jig, two and three box machines, also one box padding machine; 45 years of age, American. Good reference. 3781, Textile World Record, Boston.

Chemist or Overseer of Dyeing. Position wanted by a man 28 years of age, single. Familiar with all laboratory dyeing. Worked on all classes of goods, such as come up in mill work. Graduated from the Institute of Technology, Boston, Mass., and has had several years' experience as chemist. Good references. 3960 Textile World Record.

Overseer of Dyeing. Or would accept a position as second hand in a mill on loose cotton and silk in order to get experience. Now employed as overseer on piece dyes, cost dyes and is familiar also with indigo dyeing. Good reference. 3936, Textile World Record.

Expert Hosiery Dyer. Age 27; married and sober. Desires position of superintendent of dyeing in a first-class hosiery mill, one manufacturing high grade goods preferred. Has had over seven years' practical experience in dyeing one of the best aniline blacks on cotton, also fast colors on cotton, wool, silk and union hosiery. Best of references furnished. 2052, Textile World Record.

Overseer of Dyeing in a woolen mill. Position wanted by a man 26 years of age, single; has had experience on raw stock and piece goods. Good reference. Will not go west, south or Canada. 3779, Textile World Record, Boston.

Boss Dyer, scourer and bleacher in a knitting mill. Worked on all grades of knitted underwear. First-class references. Will not go West or to Canada. 41 years old; married. 3004, Textile World Record.

FINISHERS

Overseer of Finishing. Married man, 32 years of age. Worked on all classes of woolen goods, kerseys, broad cloths, meltons, cassimeres, cheviots, thibets, etc. Familiar with the wet and dry end and all kinds of machinery. Good reference. 4533, Textile World Record, Boston, Mass.

Overseer of Finishing or second hand in a woolen mill. 29 years of age, married, English. Worked on woolen and cotton warp broad cloths and thibets. Good reference. 4544, Textile World Record, Boston, Mass.

Overseer of Finishing.. Position wanted by a man 30 years of age, married, American. Has worked on worsted serge cassimeres, flannels, overcoatings, cloakings, dress goods, meltons, kerseys, union, etc. Is familiar with all kinds of finishing machinery. Good references. 3668, Textile World Record, Boston, Mass.

Overseer of Finishing. Worked on cotton unions, dress goods, cassimeres, beavers, kerseys, covert and army goods. First-class recommendations; 55 years of age. 1661, Textile World Record, Boston, Mass.

Overseer of Finishing in a woolen mill. Position wanted by a man 25 years of age, American. Worked on all wool, wool and shoddy, cotton mixes, dress goods, kerseys, coverts, men's wear, etc. Familiar with all American makes of machinery. Will not go to New Jersey, Pennsylvania, West, South, or Canada. Good references. 3934 Textile World Record.

Overseer of Finishing. Position wanted by an American, 40 years of age and married. Worked on all kinds of woolen and worsted goods and satinets. Familiar with all kinds of finishing machinery. 3475, Textile World Record, Boston.

Overseer of Woolen Finishing. Position wanted by a man, 51 years of age, American, married. Has worked on all kinds of woolen goods and has had a wide experience on face finished goods. Is now employed in a large mill, but desires to make a change. Good references. 3861, Textile World Record, Boston, Mass.

Boss Finisher or Assistant Designer, or boss burler and sewer in a woolen mill. Position wanted by a man 25 years of age, married, American. Worked on kerseys, thibets, plain and fancy cheviots, cassimeres, homespuns, dress goods, flannels and various piece dyes. Familiar with Knowles' looms, Jaines, Hunter, Rodney, Hunt, Parks, Woolson, Curtis & Marble. Will not go West, South or Canada. Good references. 4012 Textile World Record.

Overseer of Finishing. Position wanted by a man, 38 years of age, married, American. Has worked on kerseys, friezes, thibets and all kinds of woolen and worsted goods. Familiar with all kinds of machinery. First class reference. 3748, Textile World Record, Boston, Mass.

Overseer Finishing, or Stock Dyeing and Finishing. Worked on Union cassimeres, satinets, all wool cassimeres, cheviots, dress goods, meltons and kerseys; 39 years of age; single; Scotch, with first-class reference from past employers. 3449, Textile World Record.

Overseer of Finishing or asst. supt. woolen mill. Position wanted by a man 50 years of age, married. Worked on all kinds of woolen goods, cotton warp, unions, etc. Familiar with all kinds of finishing machinery. Good references. 3875, Textile World Record.

Overseer of Finishing. Position wanted by a man 40 years of age, married and American. Has worked on all kinds of wool and worsted and cotton mix goods, and cotton worsteds. Is familiar with all kinds of machinery used in wet and dry finishing. Good references. 3536, Textile World Record, Boston, Mass.

Superintendency of Bleaching, dyeing and finishing wanted by a thoroughly practical man, textile chemist, at present employed. Has had wide experience on the finest muslins and organdies. Laces and embroideries a specialty. Fully understands aetying, fireproofing, carbonizing, singeing, dyeing, etc. A practical man and no experimenter. An expert bleacher and finisher. 3443, Textile World Record, Boston.

FINISHERS.

Superintendent of Finishing Works or overseer. Position wanted by a man who has a wide experience on cotton goods of all kinds, fast blacks and sateens. 49 years of age, married, with good reference from past employer. Will go any place for a good position. American. 3461., Textile World Record, Boston.

Overseer of Finishing in a woolen mill. Position wanted by a man 37 years of age, married, Swede. Has worked on fancy cassimeres, thibets, woolen goods of all kinds, also union cassimeres. Familiar with all kinds of finishing machines. Good references. 3898, Textile World Record, Boston.

Overseer of Finishing. Age 30, American, unmarried, with 6 years' experience as overseer, wants position in New England. Had experience on satinets, unions, and all goods where cotton warp is used, also on nearly all machinery used in making these goods. 3335, Textile World Record.

Overseer of Finishing. Position wanted by a man 30 years of age, married, American. Worked on worsteds and woolens, both high and low grades, and all kinds of finishing machinery. First-class recommendations. 3503, Textile World Record, Boston, Mass.

Overseer of Woolen Finishing. Position wanted by a man 26 years of age, single. Worked on kerseys, beavers, broadcloths, meltons, cotton worsteds, men's wear and dress goods. Familiar with all kinds of finishing machinery. Good references. 3954 Textile World Record.

Overseer of Finishing, cutting or seaming department in a knitting mill, or assistant superintendent. Position wanted by a man 42 years of age, married. Worked on flat Balbriggan and fleece lined underwear. Good references. Will not go West, South or Canada. 3966 Textile World Record.

Overseer of Finishing. Position wanted by a man 46 years of age, married, American. Has worked on all kinds of woolens and worsteds, overcoatings, cloakings, dress goods, plushes, satinets and cotton warp fabrics. Is familiar with all kinds of finishing machinery. Good references. 3654, Textile World Record, Boston, Mass.

Overseer of Finishing.. Position wanted by a man 42 years of age, American and married. Has worked on all classes of fancy worsteds and is familiar with all kinds of finishing machinery. Good references. 3497, Textile World Record, Boston, Mass.

Overseer of Finishing in a woolen mill. Position wanted by a man 35 years of age, married, American. Worked on all classes of woolen and worsted goods, from highest to lowest grades. Familiar with all kinds of machines. Will not go West, South, Canada, Maine, Vermont, Pennsylvania. Good references. 4026 Textile World Record.

Overseer of Finishing in a woolen mill. Position wanted by a man 34 years of age, married, American. Familiar with cassimeres, meltons, thibets, kerseys, worsteds, cloakings, cotton worsteds and all kinds of cotton warp goods. Good references. Familiar with all kinds of finishing machinery. 3958 Textile World Record.

Overseer of Finishing. Position wanted by a man thoroughly familiar with all kinds of cotton goods and all kinds of machines in common use in a colored cotton mill. Has finished ginghams, flannels, blankets, fancy dress goods and endless variety of goods made in a fancy cotton goods mill. Strictly temperate and reliable. First-class recommendations. 1649, Textile World Record, Boston, Mass.

Overseer of Finishing in underwear knitting mill, or superintendent of mill making ribbed knit underwear. Position wanted by a man 27 years of age, single. Worked on men's ribbed shirts, drawers and union suits, ladies' shaped vests, pants, union suits, etc. Familiar with Scott & Williams, Snyder & Fisher, Wildman, Champion, Cooper, Collette and other makes of knitting machines; Union Special, Wheeler & Wilson, Singer, Standard, Merrow and American sewing machines. Will not go to Rhode Island, Maine or New Hampshire. Good references. 4028 Textile World Record.

MISCELLANEOUS

Master Mechanic, assistant superintendent in a cotton mill or bleachery or mechanical engineer. 41 years of age. Has had experience on sheetings, lawns, cambrics, print cloths, ducks and filled goods. Has had experience on machinery used in the manufacture of the above goods and also machinery used in bleacheries, paper mills and box machinery. Good reference. 3153, Textile World Record, Boston, Mass.

Overseer of Burling, mending, shipping or cost clerk, cashier, designer or assistant designer in a woolen mill. Married man, 32 years of age, English. Worked on men's wear, suitings, trouserings, coatings, ladies' dress goods and cotton worsteds. Understands the English, American and jacquard looms. Good reference. 4553, Textile World Record, Boston, Mass.

Bookkeeper or shipping clerk. Young German, 20 years of age. High school education. Would prefer a position in a cotton or woolen mill. Has been employed in New York with a prominent export and import house. Experienced in shipping department and bookkeeping. Good knowledge of French and Spanish. Good reference. 4547, Textile World Record, Boston, Mass.

Master Mechanic, chief engineer or traveling salesman. Position wanted by a man 45 years of age, married. Has worked on all classes of engines, boilers and electricity. First class draftsman. Could take a position at short notice. Good reference. 4540, Textile World Record, Boston, Mass.

Sewing Machine Fixer or machinist. Position wanted by a married man, 31 years of age. Is familiar with all makes of Union Special, National, button-hole and Singer sewing machines. Would prefer a position in New York State. Good reference. 4551, Textile World Record, Boston, Mass.

Overseer of Dressing, spooling and drawing in a woolen mill. Position wanted by a married man 27 years of age. Has worked on all classes of woolens and cotton worsteds. Familiar with Davis & Furber dressing machines and all makes af stop motion on spoolers. Will not go South. Good reference. 4550, Textile World Record, Boston, Mass.

Overseer of Dressing, spooling and twisting in a woolen mill. Position wanted by a man 44 years of age, married, American. Worked on fancy woolen and worsteds of all kinds, both wet and dry. Familiar with Davis & Furber and Cleveland dressing, spooling and twisting machinery. Wife is a good fancy weaver. Good references. Will not go West, South, Canada or New Jersey. 3990 Textile World Record.

Overseer of Beaming or quilling. Will go anywhere. Has worked on white and colored cotton goods. First-class references. Age 45, married. 1162, Textile World Record.

Second Hand in card or mule room, or overseer in small card room. Position wanted by a man 25 years of age, American. Worked on Union mix goods. Familiar with D. & F. and J. & B. mules and American cards. Could taks a position within ten days. Good references. Prefers position in the West. 3971 Textile World Record.

Overseer Worsted Combing. Position wanted by a man 38 years of age, married. Has worked on all classes of wools. Is familiar with the Crompton & Knowles "Nobles Combs," Taylor & Wordsworth and all kinds of gill boxes. Good references. 3903, Textile World Record, Boston.

Superintendent Small Yarn Mill. American, 25 years of age; worked on carded yarns, 8s to 60s, American cotton, white goods only. Also on all makes American machinery. Would accept position as carder, weaver or designer, where there was a chance for advancement. 3392, Textile World Record, Boston.

Overseer of Spooling, Warping and Slashing in cotton mill. Position wanted by a man 35 years of age, married. Has worked on both white and colored cotton yarns from 8 1/2s to 120s, single and ply yarns, also silk. Familiar with Whitin, Draper, Howard & Bullough, Cohoes and Entwistle machines. One weaver in the family. Will not go West, South, Canada, Vermont or Pennsylvania. Good references. Can be employed at one week's notice. 3980 Textile World Record.

MISCELLANEOUS.

Overseer of Ring Spinning, spooling and warping in a cotton mill. Position wanted by a man 42 years of age, married, American. Worked on prints, ginghams, hosiery yarns, denims, thread and lace yarns. Familiar with Whitin, Lowell, Howard & Bullard, Fales & Jenckes and Biddeford machines. Will not go West, South or Canada. Good references. 4030 Textile World Record.

Overseer of Dressing, Spooling and Twisting. Position wanted by married man, 38 years of age, worked on all kinds of woolen goods, worsteds, dress goods. Good reference. 4042, Textile World Record, Boston.

Overseer of Dressing, Spooling and Winding. Worked on all kinds of woolen and worsted men's wear and ladies' dress goods. First-class references. 31 years of age; Scotch. 3269, Textile World Record, Boston, Mass.

Cloth Overseer or second hand in dress room. Englishman, 27 years of age, with experience on all classes cotton goods and the different kinds of machinery used in this work, is seeking position. Good references. 3380, Textile World Record, Boston.

Superintendent of Silk Mill or an overseer of warping. Position wanted by a man 31 years of age, Swiss, married. Speaks German, French, Italian and English. Understands all kinds of winding, spooling and twisting machines. Is familiar with office work. Has worked on silk goods, broad silk, 2, 3, 4, 5 beam work, fancy, jacquard and raw silk goods. Good references. 3908, Textile World Record, Boston.

Manager or Superintendent in small yarn mill, or overseer of mule or ring spinning in a large mill. Position wanted by a man 42 years of age, American, married. Worked on all kinds of cotton goods and yarns. Familiar with mule, ring frames, spoolers, twisters, etc. Will not go to Canada. First class references. 3907, Textile World Record, Boston, Mass.

Overseer of Tenter Frames in Cotton Mill. Position wanted by a man 44 years of age, married, Scotch. Has worked on sateens, lawns, mull skirtings and shirtings. Is familiar with Butterworth, Stewart and Granger tentering frames. Good references. 3651, Textile World Record, Boston, Mass.

Master Mechanic. Position wanted by a man 29 years of age, American, married. Has worked in large machine shops and held position as foreman in tool department and understands all duties connected with a master mechanic's position. Good references. 3921, Textile World Record, Boston.

Superintendent. Would like position in South. Not particular about salary to start. Machinist and thoroughly acquainted with all kinds of card room machinery, also spinning frames. Taken superintendent course in textile school and has had 23 years of practical experience in the mill, mostly on fine yarn work. 3044, Textile World Record.

Superintendent of a Worsted Yarn Mill. Position wanted by a man, 38 years of age, American, married. Worked on all kinds of yarns, Bradford system. Is recommended by leading mills. 3855, Textile World Record, Boston.

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The most practical, surest, and quickest way in the world for ambitious textile workers to secure promotion is offered by an institution through whose assistance thousands of men have already advanced to better positions and larger salaries. They have done this in their own homes, in their spare time, and at an insignificant cost. We will cheerfully explain, free of charge, how we can adapt our plan to **YOUR** personal needs and income if you will write us today, stating the position you would like to secure.

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American Directory of the Knitting Trade

The red covered book

What it contains

Full reports of every knitting mill in the United States and Canada, giving capitalization; names of the officers, including superintendent and buyer; kind of goods made; number of knitting machines, whether latch or spring needle; number of sewing machines; whether the mill dyes or bleaches or finishes; kind of power; number employed; selling agent; kind of yarn bought.

Special copyrighted maps of the mill districts, showing the cities and towns where there are knitting mills. It is so indexed that any town may be quickly found. This section of the directory is arranged alphabetically by states and towns.

Carefully classified index of manufacturers according to kind of goods made, all the manufacturers of various kinds of goods being grouped together.

Alphabetical index of manufacturers, giving the page number where full report of mills is to be had.

List of dyers, bleachers, finishers, printers, etc., making a specialty of knit goods work.

Manufacturers' selling agents and commission merchants handling knit goods; the name of the person in charge of the knit goods department is given, and when a concern is sole agent or special selling agent for certain mills the names of the mill sold for follow the agents names.

List of the jobbers of knit goods, telling the kind of goods handled and the name of the buyer, with the New York address.

Department stores and large retailers handling knit goods, with the names of the knit goods buyers and the address of the New York office.

An index of machinery and supplies used in the manufacture of knit goods, also yarn dealers supplying knitting yarns.

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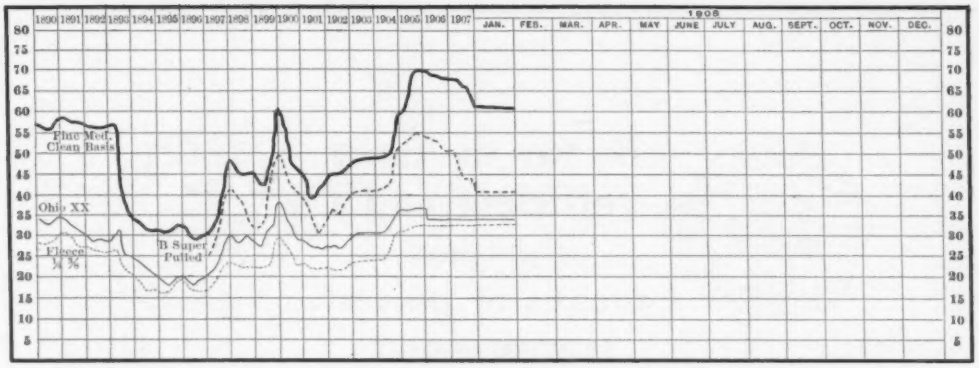


CHART SHOWING RANGES IN THE PRICE OF WOOL TO DATE.

The Wool Market.

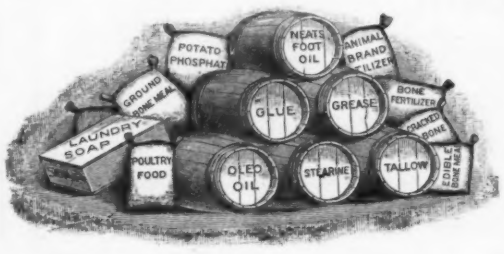
The new year has not brought a revival in the wool market. Manufacturers are holding off, waiting for an improvement in the demand for goods to warrant purchasing raw material. So far the goods markets have been draggy and until there is a change wool is likely to be bought by the mills largely on a hand to mouth basis. Conservatism is the rule in all branches of the wool and woolen trade. Everyone seems willing to let the other fellow take the risk of profit or loss on stocks of raw material and manufactured goods. While this is the general situation there is little disposition shown by holders of wool to bring about sales by lowering prices. Stocks are believed to be of moderate size and any strengthening of the demand for goods would have an immediate effect on purchases of wool. For these reasons prices remain steady in a dull market. The return of confidence in financial quarters will help the wool trade, which requires either cash or credit in large volume, but dealers are expecting a rather slow business this year owing to the disturbance incident to a presidential election.

Michigan, Hastings. The Michigan Wool Boot Company has been incorporated with capital stock of $50,000. The Hastings Wool Boot Co. of this city has capital stock of $120,000 and is doing an extensive business.

*Wisconsin, Manitowoc. The report stating that the Manitowoc Knitting Mills would erect a large addition, should have read Wisconsin Knitting Mills. Progress is being made toward the erection of an addition making the main structure 150 feet in length and 3 stories high, giving more than three times the space occupied at p:esent. Additional machinery will be required.

Wisconsin, Milwaukee. The Everwear Hosiery Co. has outgrown its present quarters and will occupy the building being erected on 5th Ave. after April 1. Fred M. Hanson is president, Fred Braun, treasurer and Jos. J Zeno, superintendent. Men's and women's seamless cotton hosiery are manufactured on 500 latch needle knitting machines. The capital stock at present is $20,000.

*Wisconsin, Westfield. The branch plant of the Portage Hosiery Co., Portage, Wis., to be started here will be a small finishing plant. This step is taken as sufficient help for increased business cannot be secured in Portage. Space has been leased in a suitable building and work will commence within a few days.



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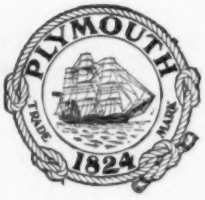

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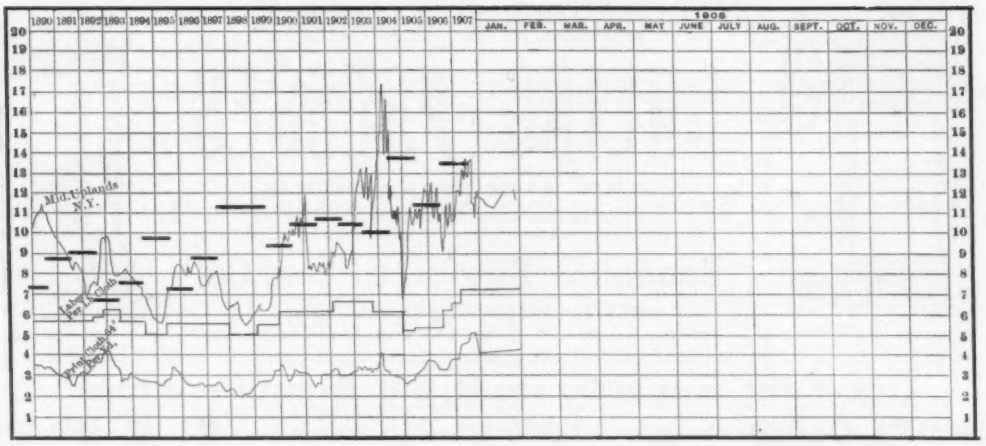
1890 1891 1892 1893 1894 1895 1896 1897 1898 1899 1900 1901 1902 1903 1904 1905 1906 1907
1908
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.
Mid. Uplands N.Y.
Mid. Uplands New Orleans
Price Quoted at Liverpool

The short, heavy, horizontal lines indicate the size of the cotton crops in millions of bales.
CHART SHOWING RANGE IN THE PRICE OF COTTON TO DATE.

The Cotton Market.

The market has been influenced to a considerable extent by speculation, bulls and bears being alternately in temporary control. As a consequence the news of strikes, shutdowns, ginning operations and other matters have been unduly magnified by the respective interests. The threat of a strike in Lancashire was worked for all it was worth by the bears until the decision which careful observers expected, to have no strike, was reached by the operatives.

There are many conflicting forces in the English cotton trade, cotton traders, master spinners and weavers and the operatives. In the tangle of cross purposes it is often to the advantage of one or more of these interests to prolong an agitation or even to precipitate a contest such as that recently threatened between spinners and their operatives.

Opinion is becoming crystallized as to the size of the present crop, the estimate hovering between 11,500,000 and 12,000,000 bales. The movement into sight from Sept. 1 to Jan. 24 is estimated by the Chronicle and compared with former years as follows:

1907-08, Jan. 24 ..... 7,790,751 bales
1906-07, Jan 25 ..... 9,373,610 bales
1905-06, Jan 26 ..... 7,706,040 bales
1904-05, Jan. 27 ..... 8,683,252 bales
1903-04, Jan. 29 ..... 7,922,794 bales
1902-03, Jan 30 ..... 7,912,521 bales

The world's visible supply on Jan. 24 is estimated by the same authority at 4,917,486 bales, as compared with 5,552,270 bales on corresponding date in 1907, 5,375,809 bales in 1906, and 4,578,617 bales in 1905.

Pennsylvania, Reading. The Central Knitting Mills Co., formerly located at 415 Moss Street, have removed into their new quarters at 717 Penn Street. The company started operations in its new mill during the middle of January and are making a line of men's seamless cotton half hose.

Pennsylvania, South Bethlehem. It is reported that the Halcyon Knitting Mills, manufacturers of seamless cotton and mercerized half hose on 120 knitters, 30 ribbers, 30 loopers and 14 embroidery machines, are contemplating the installation of machinery to enable them to do their own dyeing. They sell through Hinchman, Vezin & Co., New York.

South Carolina, Newberry. The Ashley Mfg. Company advise us that the plant will probably be doubled during the spring. This company took over the plant of the Newberry Knitting Mills last March. It has a capital stock of $30,000 and operates 48 knitting machines on seamless hosiery. J. A. Blackwelder is president, treasurer and buyer and B. B. Reed is superintendent. Hecht & Campe, N. Y. are the selling agents.

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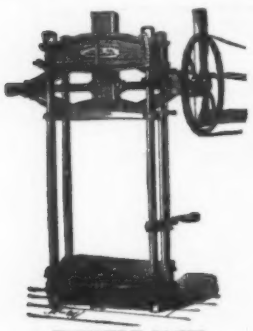

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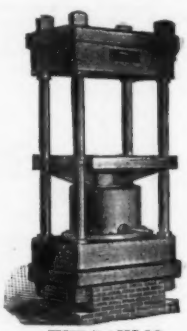

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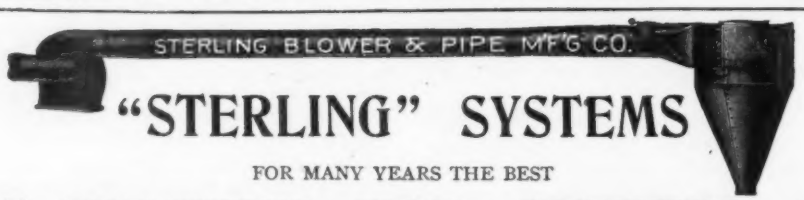
The Excelsior Compounds are the best lubricating and softening products for wool, cotton, wool and cotton mixed. Eliminates the scouring process and effects large saving in time and soap. They will not gum in the cards.
Write for prices and particulars.

OLIVE OIL TALLOW SOAP

LARD OIL



"STERLING" SYSTEMS

FOR MANY YEARS THE BEST

DUST COLLECTING, WOOL CONVEYING, ETC.

STERLING BLOWER & PIPE MFG. CO.

Write for "1907" Catalog.

HARTFORD, CONN., 1027 Huyshope Ave. New York Office, 109 Liberty St.

LOOK!

THE BRANDEN RUBBER PUMP VALVE
Will Outlast Three Ordinary Valves.

Made for hot or cold water or any fluid where rubber valves are used. By its construction will outlast several ordinary valves. A trial will demonstrate the truth of our statements.

JOHNSTONE BLOW-OFF VALVE. A most durable and useful valve.

Pressure and Vacuum Gages. Pop Safety Valves.
Steam Engine Indicators. Whistles, Lubricators, Etc., Etc.

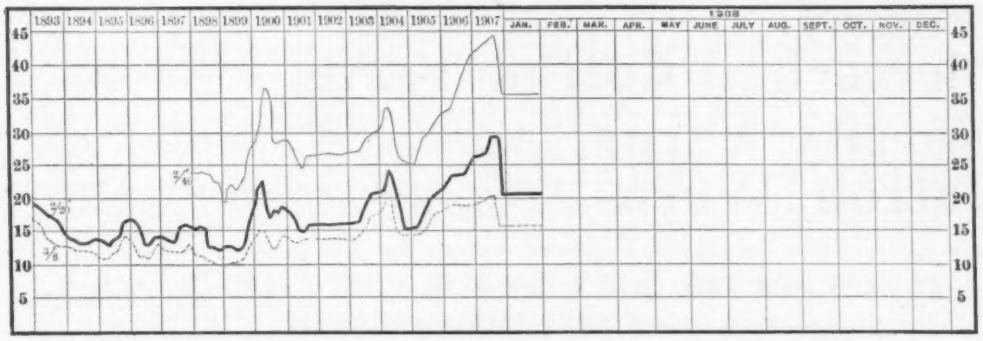
CROSBY STEAM APPLIANCES ARE UNEXCELLED.

CROSBY STEAM GAGE AND VALVE CO.,

Stores: Boston, New York, Chicago, London.

Office and Works: BOSTON, MASS.

Yarn Department.



GRAPHIC CHART SHOWING RANGE IN THE PRICE OF COTTON YARN TO DATE.

The Cotton Yarn Market.

Business in cotton yarn has been very dull for the past few weeks. Manufacturers throughout the country have not experienced the resumption in trade that they hoped would develop during January. We have had during the month a rather sensational advance in cotton, which ordinarily would have caused an advance of 1 to 3 cents per pound in the price of yarn, but owing to dull business the advance in cotton did not stimulate the demand for yarn and prices have not reflected the advance in raw material. Spinners are making an effort to get more money, but have had very little success. Any increased demand would surely cause a stiffening in the price of yarn, and with the present decreased production throughout the South, stocks of yarn would soon be reduced to a normal size. It looks as though cotton would be held high through the balance of the season, particularly good grades, which are beginning to be hard to find.

Quotations are nominal:

Eastern Cops.

6s	19¼
8s	19¾
10s	20¼
14s	21¼
16s	21¾
18s	22¾
20s	23¾
22s	24½
24s	25
26s	26
30s	27½
34s	28½
36s	31½
40s	33½

On cones, ¾c. more up to 14s; 1c. more from 15s to 22s; 1½c. from 23s to 35s, and 2c. above that.

Eastern Two-Ply Skeins, Carded Peeler.

12s	21
14s	21½
18s	23
20s	24½
24s	25½
26s	26
30s	27
36s	32
40s	39
45s	43
50s	48
55s	53
60s	58

Eastern Two-Ply Warps, Carded Peeler.

2/30s	27
2/36s	32
2/40s	39
2/45s	43
2/50s	49
2/60s	59

Egyptian Weaving Yarns.
Single Skeins Combed.

30s	45
36s	47
40s	49
45s	52
50s	56
55s	59
60s	66
70s	72

Pennsylvania, Scranton. It is reported that the Lackawanna Mills have recently purchased property adjoining and will tear down buildings preparatory to erecting a large addition to their plant. The Lackawanna Mills manufacture flat and ribbed underwear of wool and cotton for women and children.

THE J. R. MONTGOMERY CO.,

Windsor Locks, Conn.

MANUFACTURERS OF

Mercerized Cotton Yarns Gives the High Silk-Like Lustre in Knit Goods and Woven Fabrics.

Novelty Yarns Boucle, Bourette and Spirals, in Cotton, Wool, Worsted, Mohair and Silk.

Cotton Warps on Beams, Jack Spools and Tubes. In Fancy, Twist, Colors and Printed.

GREENE & DANIELS MFG. CO.,

COMBED, CARDED AND GASSED

Yarns, Threads, Twines and Chain Warps.

DYE SULPHUR BLACKS DIRECT IN COPS, CONES OR TUBES.

Colored and Bleached Yarns Furnished in any manner desired by the trade.

Pawtucket, R. I.

MONUMENT MILLS,

Manufacturers of
White, Colored, Fancy
and Double Twist

COTTON WARPS

HOUSATONIC, MASS. **4s to 60s.**

M. J. TOOHEY & CO., OF FALL RIVER, MASS.

Banding made from Egyptian or White Cotton Yarn as Desired.

The Other Fellows Banding.

The Merwin Paper Company

Hartford, Conn.

Press Papers and Fender Boards

Correspondence Solicited

Mills at Rainbow, Conn. Address Inquiries to Rainbow, Conn.

The Philadelphia Market.

Southern frame spun cones:—

7s and coarser	18
8s and 9s	18-18¼
10s	18½-19
12s	19-19½
14s	19½-20
16s	20½
18s	21
20s	21½
22s	22
24s	23
26s	24
30s	25
40s	36
50s	46

Southern high grade mule yarn:—

Cones.

10s	20
12s	20½
14s	21
16s	21¾
18s	22¼
20s and 22s	23¼
24s	24

Southern frame yarn, lower grades:—

6s and 8s	18
10s	18½

Eastern cones (high grade quality):—

10s	22
12s	22½
14s	23
16s	23¾
18s	24¼
20s and 22s	24¾-25

Skein yarn (mostly Southern):—

4s and 8s soft	17
10s and 12s	17½-18
14s to 20s	18-19
22s	19½
14/2	18
16/2	18½
20/2	19½
30/2	22
40/2	30
16/3 slack	18½
12/3 slack	18
8/3 carpet	17½
8/3 slack	17½
9/4 slack	17½

Warps (Southern):—

10s to 12s	18
14s	18
16s	18½
20s to 22s	18½-19½
26s	20
14/2	18½
16/2	19
20/2	20
24/2	21
30/2	22
40/2	31

JAMES E. MITCHELL CO., COMMISSION MERCHANTS.
Cotton Yarns
AND COTTON CLOTHS.
122-124 Chestnut Street, PHILADELPHIA, PA.
73 Leonard Street, NEW YORK.
Brown Building, 185 Summer Street, BOSTON, MASS.
25 South Tryon Street, CHARLOTTE, N. C.

CATLIN & CO.,
Cotton Yarns.
345 Broadway, NEW YORK.
67 Chauncy Street, BOSTON.
128-130 Chestnut Street, PHILADELPHIA.
605 Medinah Temple, CHICAGO.

Harding, Whitman & Co.,
Dry Goods Commission Merchants,
COTTON AND WORSTED YARNS.
BOSTON. NEW YORK. PHILA.
CHICAGO. BALTIMORE. ST. LOUIS.

A. D. Salkeld & Bro.
COMMISSION MERCHANTS
DEP'T. FRED'K VIETOR & ACHELIS
COTTON YARNS
66-72 LEONARD STREET - - NEW YORK

Fred Sternberg & Co.
530 Broadway, - NEW YORK.
MERCERIZED TURKEY RED GASSED } COTTON YARNS.

LUDWIG LITTAUER,
SUCCESSOR TO
MOELLER & LITTAUER, 109 Greene St., New York
SILK, WORSTED, WOOLEN YARNS COTTON AND MOHAIR
Polished Threads and Tinsel. Artificial or Wood Silk.
Mercerized, Turkey Red, Fine Gassed Yarns.
SILK MILL, BOONVILLE, N. Y.

High Grade Hosiery Yarn
White and Colors. All Numbers. Sewing Twines on Cones and Tubes
SPECIALTIES IN WEAVING YARN
Black and White. Double and Twist for Woolen Trade.
CANNON MILLS 53-5 Worth Street, New York
Philadelphia Office, 205-7 Chestnut St.

C. MOORE & CO.,
Manufacturers of
TWINES, THREADS AND YARNS
Jacquard Harness Twines of all kinds
on hand and made to order.
S. W. Cor. Fifth and Market Sts., Phila.

C. T. Crocker, Pres. W. F. Stiles, Treas.

ORSWELL MILLS

Fitchburg, Mass.

Capacity, 45,000 Spindles.

HIGH GRADE YARNS

From Egyptian and Peeler Cottons, Carded or Combed, in Chains and Skeins, on Balls, Beams, Spools, Cops, Cones, Tubes, Single or Twisted.

Cotton Yarns

Jenckes Spinning Company
Pawtucket, R. I.

Carded and Combed single and twisted Yarns and Threads from Peeler, Sea Island and Egyptian Cottons, on Cops, Cones and Tubes or in Skeins and Warps. Six Cord Thread Yarns a Specialty **Bleached or in colors**

GRANT YARN CO.,
COMBED AND CARDED COTTON.

YARNS 40's and above. AND
FITCHBURG, MASS. **WARPS**

Ballou Yarn Co.
PROVIDENCE. R. I.

Harness and Seine Twines and other Job Gassing, Winding, etc. All Numbers

GASSED YARN SPECIALTIES

EDDY & STREET,
Cotton, Woolen

Yarns and Braids
Worsted, Spun Silk.
PROVIDENCE, R. I.

THE RAVINE MILLS CO.
MANUFACTURERS OF

COTTON WARPS

In White and Colors on Beams and Jackspools

Specialty of Fast Black Twist on Jackspools.

VERNON, CONN.

C. M. BLAISDELL, Pres. and Treas. G. A. BLAISDELL, Vice-Pres. and Sec'y.
Established 1860—Incorporated 1893.

THE S. BLAISDELL, JR., CO.,
COTTON, EGYPTIAN PERUVIAN

American Long Staple a Specialty. Shipments direct to mill from Egypt, Peru and all American Southern Points.

CHICOPEE, MASS.
Cotton Waste Purchased on Yearly Contract from Mills.

Reels for Cotton WOOLEN AND WORSTED

Patented Hosiery Winders, Cop Winders and Spoolers.

LINDSAY, HYDE & CO.,
2124 to 2130 East York St., PHILADELPHIA, PA.

ESTABLISHED 1880.

New York Silk Conditioning Works

138-140-142 Spring Street, New York.

Testing of

Silk, Wool and all Textile Fabrics

Mixed colored yarns (mock twist, half colors):—

6s to 10s	20-21
12s to 14s	21½-23
16s to 18s	24-25

Mock Egyptian, 2c. advance over white.

Egyptian, 7 to 8c. above best quality white.

Loving Cup for C. P. Brooks.

Christopher P. Brooks, who has been the principal of the Correspondence School of Textiles at New Bedford ever since its establishment and recently resigned this position, was pleasantly surprised on the evening of January 31st by the presentation of a handsome loving cup by the present and former employees of the correspondence schools.

His friends gathered in the offices of the school in the Merchants' Bank Building and through their spokesman expressed the best wishes of his former associates. Mr. Brooks in a few words suitably acknowledged the gift.

Commencing on February 1st the correspondence courses in textiles will be conducted from the home office of the schools in Scranton, Pa., and will be in charge of Chauncy J. Brickett of New Bedford, who for the last five years has been the principal assistant to Mr. Brooks.

Improved Twisting Machinery.

The Brockway & Meckensturm Machine Co., of Moodus, Conn., are manufacturers of twisting machines for laying twine and cord, and while this establishment, under its present style, has been in existence for only a few years, the machines which they built have a wide reputation.

This company is the successor of the Moodus Machine Co., and both Mr. Brockway and Mr. Meckensturm are practical men, having been connected with the old company.

The twisting machines of this concern are found in all parts of the country, and one of the strongest recommendations is the fact that in the twine mills of their own town there are over fifty of their machines in operation. Their machinery is built in a substantial and workmanship manner, and has given very satisfactory results wherever used. They would be glad to send their catalogue upon application or give any desired information regarding any of the machines manufactured by them.

*South Carolina, Spartanburg. The Crescent Mfg. Co. advises that they have contracted for a complete spinning plant to be started up in the spring or summer. Saco & Pettee cards, drawing, slubbers, speeders and spinning frames will be installed. Also Kitson opening machinery and Foster cone winders. The entire plant, including the original knitting mill, will be driven with Westinghouse motors, and the present engine and power plant will be held for reserve power. Electricity will be furnished by one of the large power companies now running lines into the city.

LINEN YARN IMPORTER.
HUGHES FAWCETT, 115 Franklin Street, NEW YORK.
Flax, Hemp and Jute Line and Tow Yarns,
For Weaving Purposes.
Linen Jacquard Harness Twines,
Fine Cotton Harness and Heddle Twines
For Cotton, Silk, Woolen and Carpet Manufacturers.
Correspondence solicited. Samples promptly furnished.

DUNCAN & YOUNGS
95 Worth Street, NEW YORK
Practical Manufacturers of
YARNS, THREADS, TWINES, CORDS, ROPE
AND MILL SUPPLIES
Anything in the line you cannot get anywhere else apply to us.

Mercerized and Plain
Skein, Warps, Cones, Cops, Tubes
COTTON YARNS
426 and 428 Market St., Phila.
Theo. H. Strouse & Co.

RAMIE YARNS
High Quality, All Sizes, Quick Delivery
FRANK A. TIERNEY
Wool Exchange Building
260 W. Broadway New York City

THE RUSSIA FLAX CO.
Importers of Flax
FOR ALL PURPOSES.
Correspondence solicited.
477 Broadway, - Brooklyn, N. Y.

Lowell Crayons
Meet the requirements of any cotton, woolen or worsted mill.
May we send samples? 15 colors and white.
Lowell Crayon Co., Original Manufacturers Lowell, Mass.
Trade Mark on every box.

Simplex Yarn Tables.

Showing equivalent sizes of different systems of numbering yarn; cotton, woolen, worsted, etc., so that the sizes of different standards may be quickly compared. Also contains a number of other valuable yarn tables for designers, manufacturers and knitters. PRICE 50c. Textile World Record, Boston.

Pocasset Worsted Company,

WORSTED YARNS

IN THE GRAY.

Mills at Thornton, R. I.

Office 100 Boylston St., Boston, Mass.

French System. Bradford System.

B. F. BOYER CO.,

MANUFACTURERS OF

WORSTED AND WOOLEN YARNS,

Office and Mill, River Ave. and Marlton St. CAMDEN, N. J.

THE MALCOLM MILLS CO.,

MANUFACTURERS OF

FANCY YARNS and POLISHED THREADS.

Offices: 229 Chestnut St., Philadelphia.

Mills: Frankford, Pa.

KROUT & FITE MANUFACTURING CO.,

Manufacturers of

Silk, Cotton and Mercerized Narrow Fabrics

SPOOL TAPES A SPECIALTY.

Telephone Connection. Office and Mill, Allegheny Ave. and Emerald St., PHILADELPHIA.

WORSTED YARNS

RICHARD CAMPION.

SELLING AGENT FOR

Bristol Worsted Mills,

Highland Worsted Mills.

The French Worsted Co.

300 Chestnut Street,

PHILADELPHIA, PA.

F. W. MAURER & SONS CO.

MANUFACTURERS OF

TAPES, BINDINGS, NARROW FABRICS AND EDGINGS FOR NOVELTY CURTAINS

Office, 528 Cherry St. Factories, 529 & 531 Arch St. and 524 Cherry St., and Germantown Ave. & Bristol St.

PHILADELPHIA

Woolen and Merino YARNS

Eaton Rapids Woolen Mills,

EATON RAPIDS, MICH.

Bradford System French System

STEPHENSON & CO.

Worsted and Woolen Yarns

240 Chestnut Street

PHILADELPHIA.

Hoffman, DeWitt & McDonough Co., Inc.

Manufacturers of

Diamond Stay Bindings

TRADE MARK

Tapes, Webbing and Bindings.

COTTMAN and G STS., PHILADELPHIA

CHELTENHAM, PENNA.

Bell Telephone, 235-D Cheltenham

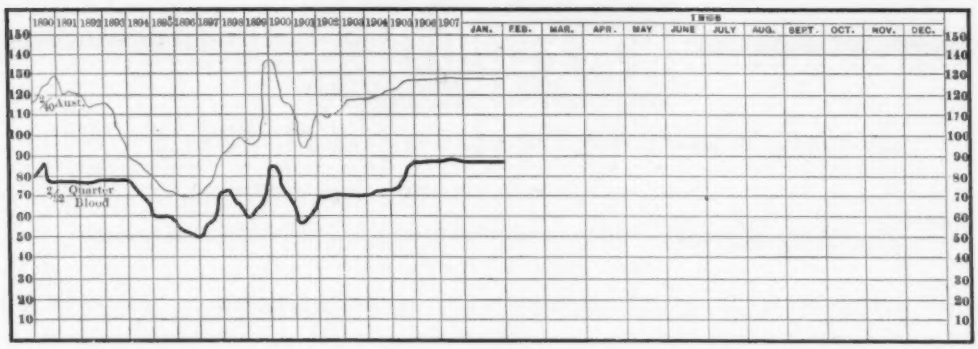


CHART SHOWING RANGES OF PRICE OF WORSTED YARNS.

The Woolen and Worsted Yarn Market.

The worsted yarn market is rather quiet. There seems to be a better feeling among manufacturers. They are of the opinion that business, while rather slow at this time, is bound to increase. The expected increase in prices for all lines of worsted yarns have not materialized. Spinners have reduced prices on almost all numbers in an effort to get business. Spinners of fine yarns report that they are fairly well employed and in some cases have enough business on hand to keep them going for some time to come.

The fancy knit goods trade is in better shape at this time than it has been for some time back. While buyers are not placing large contracts for yarn they are buying in small lots and placing repeat orders.

The underwear trade is very quiet and in some instances it is said mills are not placing orders at all.

Western business, which has been good up to a few months ago, is not what it should be, manufacturers buying in small lots and only when they need yarns for immediate use.

Men's wear manufacturers, who are usually at this time the largest buyers, are late in opening their fall lines and the lack of business from this source is keenly felt.

The dress goods manufacturers in some cases are working their mills to their fullest capacity in an effort to fill orders. This applies more especially to manufacturers who have been working on a line of novelties which have taken well on the market and whose mills have been kept running full time all through the recent depression.

Raincloth yarns still remain at the old prices. We quote as follows:

2/12 to 2/16 low common	65-67½
2/26 to 2/28 common	75
2/12 to 2/20 1/4 blood	80
2/26 to 2/28 1/4 blood	82½-85
2/32 1/4 blood	85-87½
2/20 3/8 blood	90-92½
2/26 3/8 blood	92½-95
2/30 3/8 blood	95
2/36 3/8 blood	95-97½
2/40 1/2 blood	1.10-1.12½
2/40 delaine	1.20-1.22½
2/50 delaine	1.25-1.30
2/40 Australian	1.25-1.30
2/50 Australian	1.32½-1.35½
2/60 Australian	1.45-1.47½
2/24 lustre	85
2/28 lustre	87
2/30 and 3/32 lustre	90-92½
2/36 lustre	97½-1.00
1/24 worsted and 80s single cotton for raincloths	1.00-1.05
1/24 worsted and 120 single cotton for raincloths	1.15-1.20

FRENCH SPUN YARN.

1/20 1/4 blood	82½-85
1/20 high 1/4	93-95
1/20 3/8 blood	1.06-1.08
1/20 1/2 blood	1.08-1.10
1/20 high 3/8	1.02-1.04
1/30 high 1/4 blood	95-97½
1/30 3/8 blood	1.04-1.06
1/30 1/2 blood	1.10-1.12½
1/40 1/2 blood	1.12½-1.15
2/50 1/2 blood	1.30-1.32
1/50 delaine	1.22½-1.25
1/40 Australian	1.25-1.30
1/50 Australian	1.30-1.35
1/60 Fine Australian	1.40-1.45
1/70 Fine Australian	1.45-1.50

Pennsylvania, South Bethlehem. The Austin Knitting Co. has removed to new building erected especially for their business and increased the number of knitting machines to 74. 176-200 needle half hose and misses' fine ribbed hosiery are manufactured. Product is sold through Wesendouck, Lorenz & Co., New York. The new location is directly across the street from the old plant.

TRADE MARK REGISTERED IN
NON-FLUID OILS
UNITED STATES PATENT OFFICE

The Cost of Lubrication is the cost of lubricants plus the cost of power wasted in overcoming friction. The most economical lubricant is that which best reduces friction—not necessarily that which lasts the longest. Oils reduce friction but drip and spatter and waste. Grease lasts long and is not wasted, but *increases* friction because of its heavier "body."

Non-Fluid Oils *do not drip, do not waste, and do reduce friction.*

SEND FOR FREE TEST SAMPLE.

New York & New Jersey Lubricant Co., 14-16 Church Street, New York City

WILLIAM B. CHARLES,
Cotton Yarns,
Cotton Cloth,
Silesia, Sateens,
For the Underwear Trade.
AMSTERDAM, N. Y.
Boston Office, 200 Summer St.

EDWIN F. SCHOFIELD,
ALL GRADES
PULLED AND FLEECE WOOLS
FOREIGN NOILS, CARPET WOOLS.
COTTON WASTE.
Mariner and Merchant Building,
3d and Chestnut Streets, Philadelphia, Pa.

JOSEPH M. ADAMS CO.
WOOLEN YARNS,
Carpet Backing and Rug Yarns a Specialty.
ARCOLA MILLS,
Main St., foot of Centre St., Manayunk, Philadelphia.

Knitting and Weaving
YARNS.
Cones, Cops, Warps, Skeins,
Single, Double, Three-Ply, etc.
Peeler, Egyptian, Mixed Colors.
Large Assortment.
EDWARD S. HYDE,
226 CHESTNUT STREET,
Philadelphia, Pa.

Russian Flax.

The Russia Flax Co., 477 Broadway, Brooklyn, N. Y., represents Russian flax interests and is now prepared to offer Russian flax direct to American manufacturers.

Mr. Poweill of the concern is familiar with the requirements of linen manufacturers, having sold large quantities of this Russian flax to German linen manufacturers. At the present time much, if not all, of the Russian flax used in this country is either ordered direct from Russia or imported through German agents, and the Russia Flax Co. expects to offer a greater convenience to American manufacturers by closer connections.

They solicit correspondence with the purchasing agents of mills using this product, also from brokers who sometimes handle orders for flax.

Trade Marks Registered.

"Fil au Patriote." Linen Thread. Arthur J. Kahm, New York, N. Y.

"Tussola." Silk and Silk Mixed Piece Goods. Susquehanna Silk Mills, New York, N. Y.

"Isabelle." Ladies' Knitted, Netted and Lace Drawers. Harriet Powel Wheeler, Chicago, Ill.

"Oriole." Burlaps. Whitridge, White & Co., Baltimore, Md.

"Wunderhose." Hosiery. Richmond Hosiery Mills, Chattanooga, Tenn.

"Trojan Knit." Men's, Women's and Children's Knitted Underwear. The Troy Knitting Co., Troy, N. Y.

"Surgeons." Bleached Absorbent Gauze in the Piece. The Jacobus & Carlisle Co., New York City.

"Owl Brand." Chiffons, Malines, Ribbons, Velvets. Friedmann & Distillator, New York City.

"Cloisonnette." Knitted and Netted Underclothing. Elmira Knitting Mills, Elmira, N. Y.

CHENEY BROTHERS

Silk Manufacturers. So. Manchester, Conn.

Trams, Organzine and Spun Silks in the hank, or on spools and cones for woolen manufacturers.

Silks for electrical uses, insulation and special purposes made to order.

Knitting Silks, Ribbons and Piece Goods for Trimming Knit Goods.

Dress Silks, Satins, Linings, Printed Pongees, Foulards and Decorative Silks; Upholstery Goods, Ribbons, Sashes, Plushes and Velvets.

WILLIAM RYLE & CO.,

Foreign and Domestic

Spun Silk Yarns and Noils.

Domestic Thrown Silk of every description. Fine Pure Dye Silks for the woolen trade a specialty. Importers of European and Asiatic Raw Silk.

54 Howard St., cor. Mercer St., NEW YORK.

SAUQUOIT SILK MFG. CO.,

INSULATING AND BRAIDING SILKS.

ORGANZINE, TRAM & HOSIERY SILKS.

Fast Dye Organzines for Woolen Manufacturers a Specialty.

Mills: Bethlehem, Pa., Phila., Pa., Scranton, Pa. New York Representatives, Wm. Ryle & Co., 54 Howard St.—Phila. Office, 4015 Clarissa St., Nicetown.—Chicago Office, 188-190 Market St.—Boston Office, 78 Chauncy St.

Crochet Lace Edgings

Spun Silk, Splicing Yarn, Mercerized Yarns, Cotton Warps, Sewing Threads, Tapes, Braids, Domets, Cambrics, Silesias.

Write for Prices and Samples.

George W. Chapin, 229-231 Church St., Philadelphia.

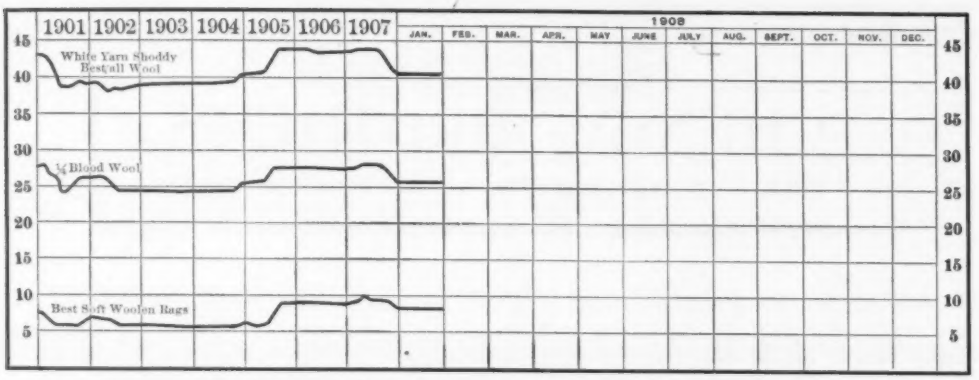


CHART SHOWING RANGE OF PRICES OF SHODDY, RAGS AND NOIL.

The Rag and Shoddy Market.

A very small volume of business has been done although holders of stock have attempted to get orders by shading prices. Buyers have found the lower quotations no temptation. Purchases have been confined to supplying actual needs and the determination has been general to reduce stocks to a minimum. This has resulted in throwing the burden on the rag dealers. The expectation that an increased demand from manufacturers would materialize soon has served to steady the market. If this is not to be the case, it is difficult to avoid the conclusion that lower prices will be in evidence during the next few months. Wool waste has shared in the general depression, and prices have been cut to move the stock. There is little demand and dealers are refusing apparently attractive offers to buy.

SHODDIES AND EXTRACTS.

White yarn, best all wool	44-47
White knit, all wool, best fine	35-38
White knit, No. 2	31-36
Light yarn, extra fine	30-34
New pure indigo blue	30

Merino.

Fine light, all wool	23-27
Medium light, all wool	15-16
Fine black, all wool	25-27
Fine dark, all wool, best grade	19-22
Medium dark, all wool, No. 2	15-17
Red knit stock, strictly all wool	21-22
Red flannel, all wool	22-23
Dark blue for hosiery, strictly all wool, No. 1	21-23
Dark blue for hosiery, not all wool, No. 2,	16-18

WOOLEN RAGS.

Fine merchant tailors	10-11½
Choice light colors	15-17
Browns	11-13
Blacks	9-11
Fine blues, plain	9-10½
Fine dark	10-12
Medium dark	6-7

Worsteds.

Blue	15-17
Black	20-22

Serges.

New black	14-16
New blue	13-15

Flannels.

New scarlet	19-20½
New blue	15-16½
Cloakings	3-4¼

SOFTS AND KNIT STOCK.

Soft woolens, best	5½-7
Old white flannels	20½-22
Old red flannels	13½-14
Old blue flannels	8-9
Old plaids	8-8¾
White stockings	20-22
White hood stock	20-22
Clear hoods	9½-10
Blue stockings	8-9½
Fancy stockings, No. 1	11
Gray stockings	10½-11
Black stockings	8½-10
Knit stock comforters	7-8½
Red knit	13-14½
Light gray knit	10-11½
New light fancies	13
New fancies	10½-12½

Merinos.

Light, fine	16-17½
Light, coarse	6-7½
Fine, dark	12½-13
Coarse, dark	4½-6
Blue	10½-12
Black	13½-14½

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There are excellent chapters on cotton baling, describing the different kinds of bales and baling processes, and on the opening and mixing of cotton in the mill, with account of different machines employed, and improved methods of mixing.

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Shear, fine white, all wool	9½-12
Fine indigo blue, all wool	6½-7½
Fine black and blue, all wool	6-7½
Fine dark, all wool	3½-4½
Gig, fine, all wool	2½-4
No. 1 black, all wool cut	6-10

COTTON WASTE.

No. 1 Spinners	11½-12½
Machine Cop	7½-8
No. 1 Cop	7
No. 1 Card	8-10
No. 2 Card	5-6
No. 1 Oily Card	5
No. 2 Oily Card	4
Peeler Combing	10-11
Eyyptian Combing	9-11
No. 1 Linters	4½
No. 2 Linters	3-4
Woven White Clips	7
Woven Colored Clips	3½-4

Dyestuffs and Chemicals.

Acids.

Acetic, 100 lbs.	2.70-3.25
Citric, domestic	50-53
Oxalic	8¼-8¾
Sulphuric, 66 deg., 100 lbs.	1.25-1.75
Muriatic, 18 deg.	1.15-1.75
Tartaric crystals	28¼-29

Miscellaneous Chemicals and Dyestuffs.

Acetate of lime, gray, 100 lbs.	2.55-2.75
Alum, lump	1.75-1.90
ground	1.90-2.10
powdered	2.90-3.25
Aqua ammonia, 26 deg.	4½-6
Ammoniac, sal., gray	6-7½
Borax, bbls.	5-6¼
Brimstone, crude, ton	22-50
Copperas	60-80
Cream tartar, crystals	23-23¾
Fuller's earth, powdered, ton	18¼-22½
Glauber's salt	55-65
Potash, chlorate, crystals	9-10
powdered	9-10½
carbonate	4-5¾
Soda, bicarbonate	1.62½-1.72½
Soda, caustic, domestic, 60 per cent.	1.80-1.90
Sal., American	70-85
Vitriol, blue	5-5¾
Acetate of soda	4½-6
Acid, picric, best crystals	25-27
tannic, commercial	35-40
Albumen, egg	65-75
blood	22-35
Alizarine, red	16½
Aniline, oil	12-13
salt crystals	11
Bichromate of potash, American	8¾-9½
Bichromate of soda	7¼-7¾
Bisulphite of soda	1½-2½
Cutch, mat	5-7
Dextrine, imported potato	5-6½
Divi-divi, ton	45.00-60.00

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LIABILITIES (Including Capital)	13,659,487
RESERVE AS A CONFLAGRATION SURPLUS	500.000
NET SURPLUS OVER ALL LIABILITIES AND RESERVES	6,703.211
Surplus as Regards Policy-holders	10,203.211
Losses Paid Since Organization Over	110,000,000

Note amount of surplus after providing for San Francisco and other conflagrations.

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Fustic	1½
Gambier	5½-6
Hypo. of soda	1.45-1.75
Indigo, Bengal, low grade	50-65
medium	65-75
high grade	75-95
Kurpahs	55-60
Guatemala	55-75
Manila	55-65
J. (Synthetic)	18-25
Logwood, crystals	11-15
liquid	3-10
Madder, Dutch	12-15
Muriate of tin, 33 degrees	11-12½
54 degrees	17-18¼
Nitrate of iron, 47 degrees	4¼-5
Nutgalls, blue Aleppo	18-20½
Phosphate of soda	2-2¾
Prussiate of potash, yellow	16-17¼
Starch, corn, pearl	2¼-3
potato	4-5¼
wheat	5¼-6
Tin crystals	22-25¼
Zinc dust	6-6½

Removal.

Catlin & Co. moved their Philadelphia storehouse and office on January 1 to 128-130 Chestnut St.

Pennsylvania, Schuylkill Haven. J. F. Bast, proprietor of the Royal Knitting Mill has equipped a bleachery with a capacity of handling 1200 pounds of goods daily. 40 knitting and 60 sewing machines are operated on women's cotton ribbed vests.

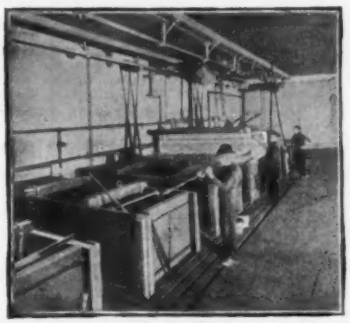
Pennsylvania, Slatington. The Slatington Knitting Co. has recently elected P. G. Jones, its superintendent, to be secretary of the company. They have also increased their plant and are now manufacturing hosiery on 48 knitters, 60 ribbers and 7 loopers. The product is sold through Quaker City Hosiery Co., Philadelphia, and Gallagher & Sealy, New York. They do their own dyeing and finishing.

Tennessee, Maryville. The Maryville Hosiery Mills, which took over the plant of Albert Deavill, are considering plans for doubling the present capacity of 25 knitting machines. Men's hosiery is the product. R. H. Hanna is secretary and buyer, and Albert Deavill is superintendent.

*Virginia, Radford. As previously reported, the Radford Knitting Mills will add 80 additional knitting machines. Contract has been awarded. This plant started manufacturing in October and has met with excellent success. It has capital stock of $20,000.

Waters' Dyeing Machine

This cut shows a new and useful machine patented by D. F. Waters for the dyeing of any color on Worsted, Woolen, Cotton and Merino Yarns.



Being successfully operated by some of the largest manufacturers in the country.
The saving of labor will more than pay for a machine in a few months.
Capacity; 2,000 lbs. a day per man.
Machine can be seen in operation at any time at my plant where I have 15 in operation all the time.

D. F. WATERS,
54 and 55 Wister St., GERMANTOWN, PHILADELPHIA, PA.

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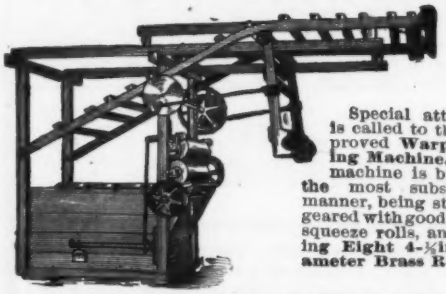

Special attention is called to this improved **Warp Dyeing Machine.** This machine is built in the most substantial manner, being strongly geared with good, heavy squeeze rolls, and having **Eight 4-½in. Diameter Brass Rolls.**

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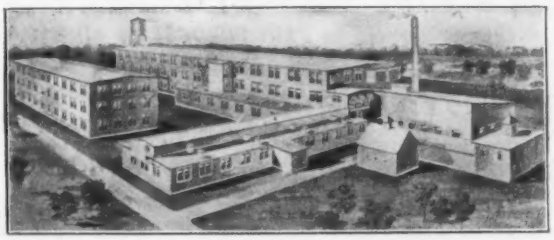

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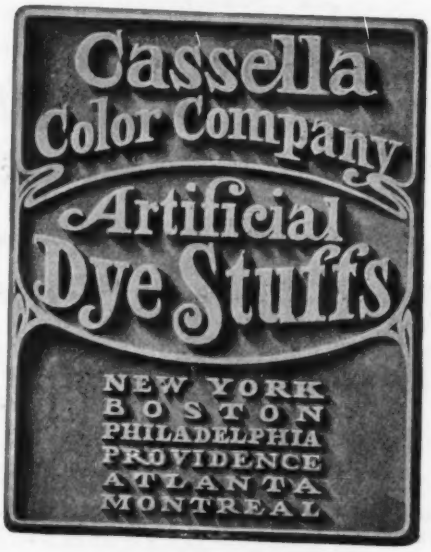

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is the most important problem of its construction. By using the saw tooth construction of roof with the "*Anti Pluvius*" system of skylight the maximum amount of light is carried into the building to every part of the floor. The ventilation is another important consideration and every mill should be equipped with the *Lovell Window Operating Device* by means of which a long line of sash can be opened and closed from one station. Let us submit estimates for the lighting and ventilation of your building. We will guarantee satisfaction.

The G. Drouvé Company

Western Office,
40 Dearborn St., Chicago.

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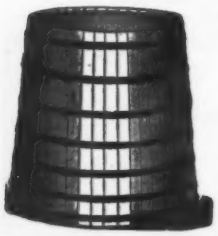
G. WOOLFORD WOOD TANK MANUFACTURING CO.

MANUFACTURERS OF



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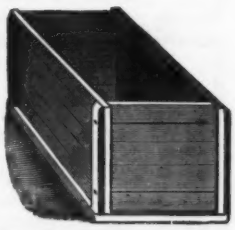
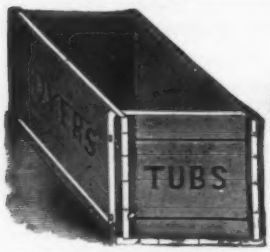
TANKS AND VATS

For Bleaching, Dyeing and Finishing.

Reservoir Tanks of any Capacity or Shape for Sprinkler Systems and all purposes.



Office 1429 Chestnut St., Philadelphia, Pa.



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AMOS H. HALL, SON & CO.,

Manufacturers of

Cedar Vats and Tanks

2915-2933 North Second Street,

PHILADELPHIA, PA.

Tubs and Tanks of all kinds for Dyers, Bleachers, Factories, etc.

Down Town Office, 140 Chestnut Street, Corner Second.

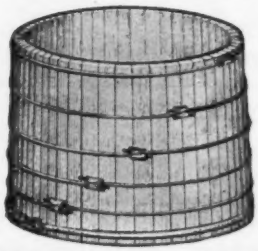
Hours from 12 to 1

TANKS

All sizes all shapes.

Built to Last

LARGE TANK WORK A SPECIALTY



Send for catalog. Established 1849.

The A. T. Stearns Lumber Co., Boston

All Europe is talking about

DIASTAFOR

A new product for

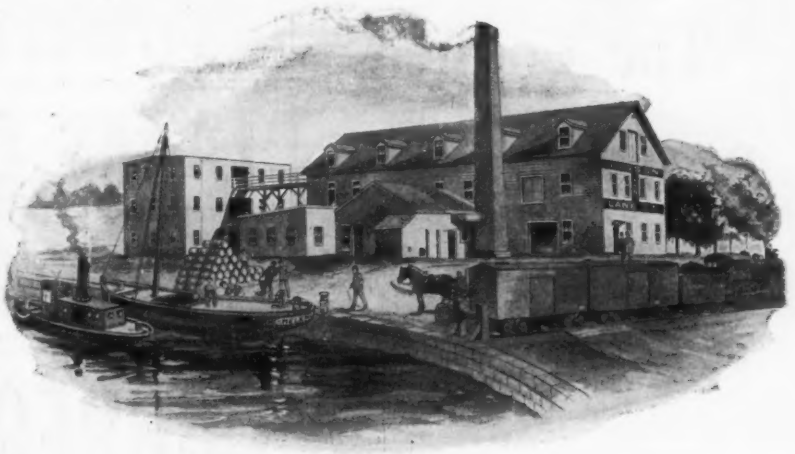
SIZING and FINISHING

For particulars write

The American Diamalt Co.

Riverside, Cincinnati, Ohio.

Castor Oil our own make and Castor Oil Products. Unsurpassed in quality. They are the standards.



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OLEINE

B. & L. ANTI-CHLORINE (ultra bleaching process)
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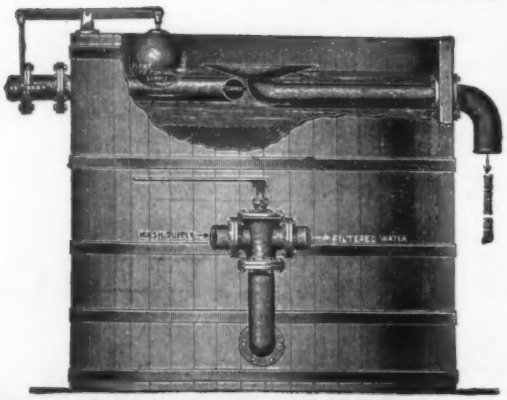
NORWOOD ENGINEERING COMPANY,

FLORENCE, MASS.



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Our filters are already in use in a number of the representative textile mills of the country, from whom we have received many expressions of satisfaction. Our representative will call and explain our system whenever desired.

The Cohnen
Centrifugal
Dyeing Machine

(U. S. Patent 776,295, Nov. 29, 1904.)

Dyes Raw Stock or Yarn in Cops, Skeins or Bundles (Warps)

Dyes Sulphur Colors

without bronzing or streaking and leaves the stock in perfect condition for carding or weaving.

Only One Handling

is required to dye, oxidize and hydro-extract ready for the drying room.

The machine may be seen in operation by applying to the American Agents

A. Klipstein & Co., 122 Pearl Street, NEW YORK.

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MANUFACTURERS OF

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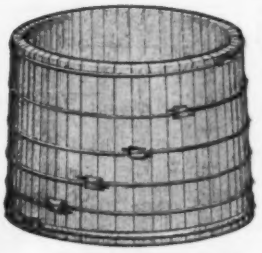
OF ALL KINDS

Factories at Apalachicola, Fla. and Boston, Mass.



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Printing Rollers Singe Plates and Sheets

Taunton-New Bedford Copper Co.

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Our Guarantee:

Superior Quality. ***Prompt Shipments.***

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HIGH SPEED ELASTIC STITCH SPECIAL SEWING MACHINES FOR MANUFACTURING PURPOSES

TRIPLE THE EFFICIENCY of YOUR OPERATORS.

Bound Neck.

(1) Cutting Out Neck Piece
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(3) Ornamental Edge Covering
all in One Simple Operation.

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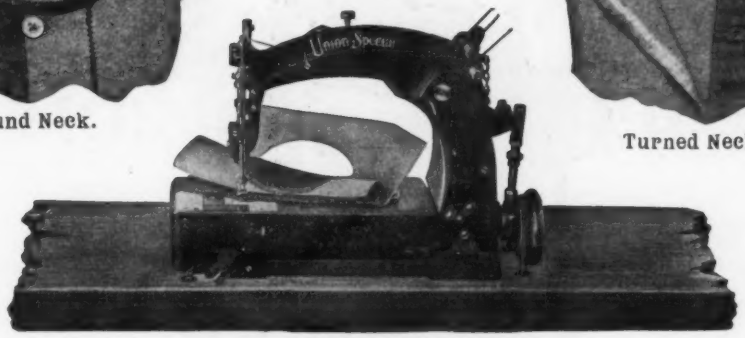
Perfect Work.



High Speed.

STYLE 6900 G.

SPECIALLY DESIGNED FOR "NECKING" KNIT UNDERSHIRTS.

The one machine may be used to make either turned or bound necks.

(Both operations on this machine, patent applied for.)

Most Durable Sewing Mechanism Ever Constructed.

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MAIN OFFICE AND FACTORY
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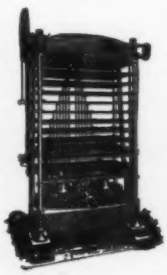
The CRAWFORD



HOLLOW STEAM
PLATE PRESS
For Knit or Woolen Goods.

The most reliable machine of the kind on the market.

PRESS PAPERS and FENDERS.

SPENCE & RIDEOUT,
Successors to
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GAS ENGINES for city or country
BRUSHING MACHINERY
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FOR EMBOSSING AND OTHER CALENDERS.

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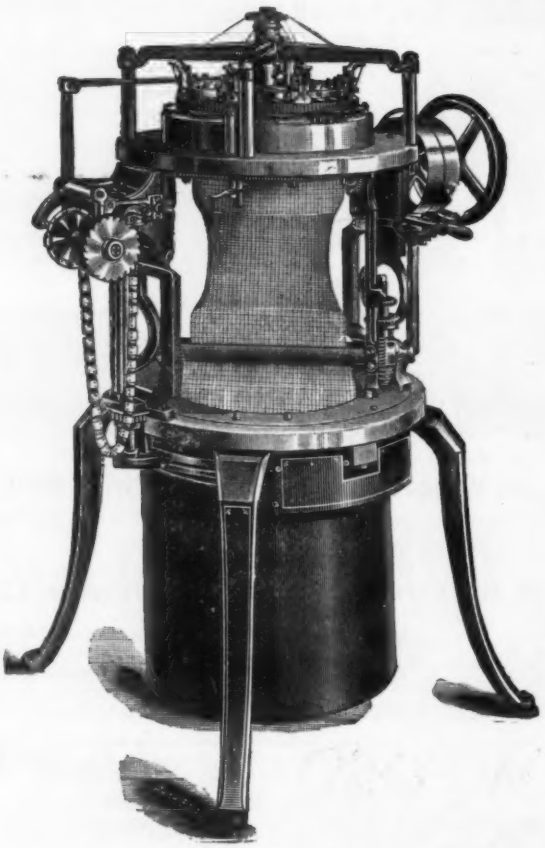
Manufacturers of

Circular Rib Knitting Machinery

Automatic
Stop
Motions



Electric
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AUTOMATIC AND PLAIN

For all classes of Ribbed Hosiery, Underwear, Combination Suits, Sweaters, Etc.

FRIEDBERGER-AARON MFG. CO.

Leading Manufacturers

Braids and Edgings

For Trimming

Ladies' Ribbed Underwear.

Having Installed More New Machinery and **Increased Our Facilities** in general, we are in better position than ever to sustain our **Established Reputation.**

Mills: Germantown, Philadelphia

P. O. Address, Logan Station, Philadelphia.

If You Want

Largest Production For Least Money

Write

Geo. D. Mayo Machine Co.,

Laconia, N. H.

Latest
Simplest
Best

MAYO'S

New Full Automatic Knitter

PHILADELPHIA OFFICE,
KNICKERBOCKER BLDG., COR. SIXTH AND ARCH STS.,
B. M. DENNEY, REPRESENTATIVE.

NYE & TREDICK CO.

Circular Rib Knitting MACHINERY

For making Ribbed Underwear, Combination Suits, Sweaters, Cuffs, Shirt Borders, Hosiery, etc. : ; :

Correct Construction. Excellence and Durability.

LATEST IMPROVEMENTS
QUALITY OF FABRICS AND PRODUCTION
UNEXCELLED

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The Most Productive, Strongest and Best

Full Fashioned Hosiery Machines

System **G. Hilscher, Chemnitz, Saxony,**

Can Be Delivered in Short Time and Fully Guaranteed
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THE GROSSER KNITTING MACHINE CO.

WOOL EXCHANGE
Rooms 400-421-423

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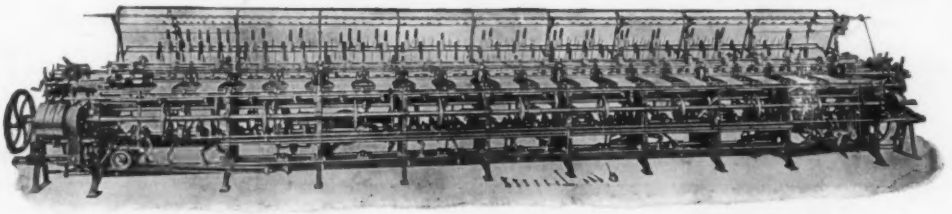
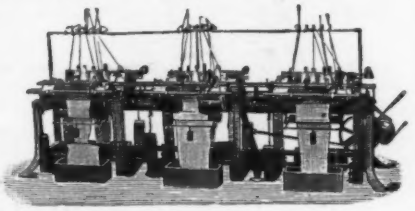


18 Section "COTTON HILSCHER" Machine for Full Fashioned Silk Hosiery
Gold Medal, Paris, 1900 Numerous Patents Covering Special Improvements

All Special Machines For Any Article That Is Knit



GROSSER Flat Knitting Machines
For HAND Power or FULLY AUTOMATIC Power MACHINES. Most productive and best machines for Sweaters, Jackets, Blouses, Wool Hosiery, Gloves, Mittens, Sporting Goods in Plain, Fancy and Jacquard Work, Shaker Articles, etc. Large stock on hand. Power Machines to be seen in operation.

FRENCH FRAMES
C. Terrot Söhne, Cannstatt, Würt, famous builders of the best Circular Frame for Finest Underwear, Fleece Linings, Gloves, Special á-jour (open work) Fabrics, etc.

RASHEL MACHINES [Double Rib Warp Knitting Machines.]
For Fancy Goods in largest variety, Shawls, Capes, Caps, Borders, Fringes, Lace Work, etc., in silk, wool, cotton.

SPOOLERS, Parafiners, Finishing Machines for the knitting business.

Exclusive Agency for the Famous

Julius Koehler DIAMENT OVERSEAMERS, indispensable for all full fashioned articles, Hosiery, Gloves, Jersey Sweaters, Sporting Goods, etc.

LOOPERS Double thread Lock stitch, self-cutting and cleaning attachment. Reliable money saver.

FRITZ ZACKE LATCH NEEDLES, for any purpose in the knitting line, patented rivets.

Samples, Specifications, Prices, etc., upon application.

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ALL KINDS OF NEW AND SECOND HAND

KNITTING MACHINERY

A RARE OPPORTUNITY TO BUY.

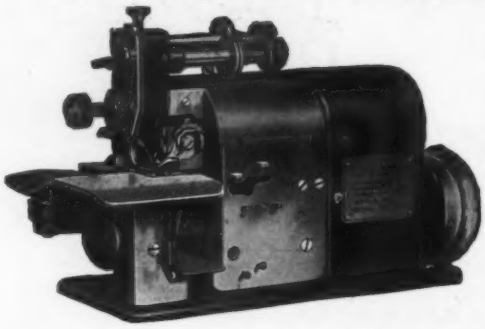
1 Bruce band folder and cutter.
38 Beattie & Hepworth & Abel loopers.
6 Hosiery presses (lever).
114 Lamb and Grosser sweater machines.
200 Ribbed underwear machines, various sizes.
50 Brinton & Co. ¾ aut. knitters, sizes.
30 Union Special machines, various styles.
1 Rotary fire pump.
100 feet woven rubber hose, 3 inches dia.
3 Toque machines.
100 Brooks welters.
250 Brinton & Co. and other make hosiery ribbers.
140-Ribbed shirt machine cylinders and dials, all sizes, cuts and makes.
2 Grosser Jacquard machines for gloves.
3 Cyclone dryers. (Hosiery.)
5 Band folding and cutting machines.
1 Centrifugal Pump.
1 Small Steam Pump. 1 Small Belt Pump.
2 Lamb border machines, auto. rack.
10 German sweater machines, flat.
2 20 Plate Crawford Screw Press, 31x43.
3 Double Ribbed Machines.
5 Cop and Skein Winders.
2 Pownall Screw Presses 34 x 52 in.
1 Cleveland 42″ Belt Driven Extractor.
5 Pair Platform Scales.
2 Singeing Machines.
1 Hosiery Printing Press.
3 Cornely Embroidery Machines.
34 Standard "B" 200 Needle Machines.
20 " B 188 " "
54 " B Machines for sizes.
24 Mayo "Acme" " " "
500 Dozen hosiery shaping boards.
1 Crane Style Collarette Machine 20 in. diameter 16 Needles.
1 Curtis & Marble Napper.
1 Davis & Furber "
1 McCreary "
22 National Knitters, 3¾ in,, 216 needles.
1 20-plate Crawford Press.
10 Jones Fleecers for hosiery.
1 Davis & Furber 72″ Napper, 20 rolls.

WRITE FOR COMPLETE LIST. APPRAISEMENTS A SPECIALTY.
We are always in the market to buy good second-hand Knitting and Finishing Machinery.

The Merrow

High Speed Overseaming, Overedging and Scallop Stitch Machines are

FAST
DURABLE
Light Running



OUR NEW STYLE 60 MACHINE for Trimming and Overseaming in one Operation produces the strongest, best Seam and does it with the greatest economy.

USE STYLE 18 for Horse Blankets.
STYLE 17 or 22 for Bed Blankets.
STYLE 35 B SHELL, for Necks and Fronts of Rib Goods, produces the most showy, substantial finish.

Send for Catalogue and Samples.

THE MERROW MACHINE CO. HARTFORD, CONN.

Knickerbocker Building, Sixth and Arch Sts., Phila. Room 321, 467 Broadway, New York

Full Fashioned Hosiery Machines

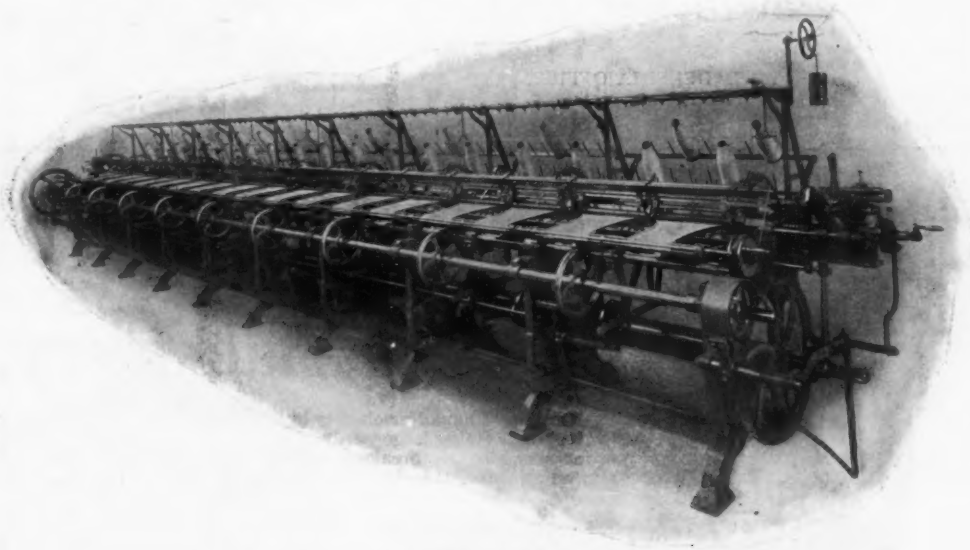
BUILT BY

SCHUBERT & SALZER

Largest Manufacturers of all classes of Hosiery Machines.

The plant, which is located in Chemnitz, Germany, declared by engineering experts and hosiery manufacturers to be the finest of its kind, is equipped with the most modern American and European machine tools, employing 1600 skilled workmen.

These machines have been proven the best constructed and most productive in the market for the manufacture of cotton, lisle and silk hosiery and since their introduction into this country 13 years ago have always been the leaders among a number of competitive makes, as upon trial they have fully borne out all that is claimed for them.



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All the leading manufacturers of full fashioned hosiery in this country. Largest individual order for 65 eighteen section machines placed recently by the new million dollar concern, the Brown-Moore Hosiery Co. of Philadelphia.

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OTTO WALTHER, = 507 Bourse, = Philadelphia.

The Invincible

Full Automatic.

"The KNITTER that KNITS"

THE LARGEST PRODUCER OF PERFECT WORK.
SIMPLE, POSITIVE AND EASY TO OPERATE.

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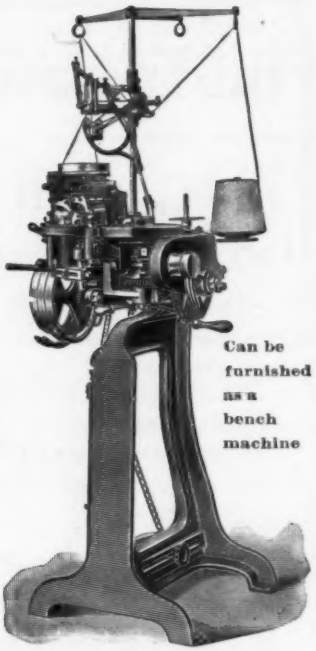
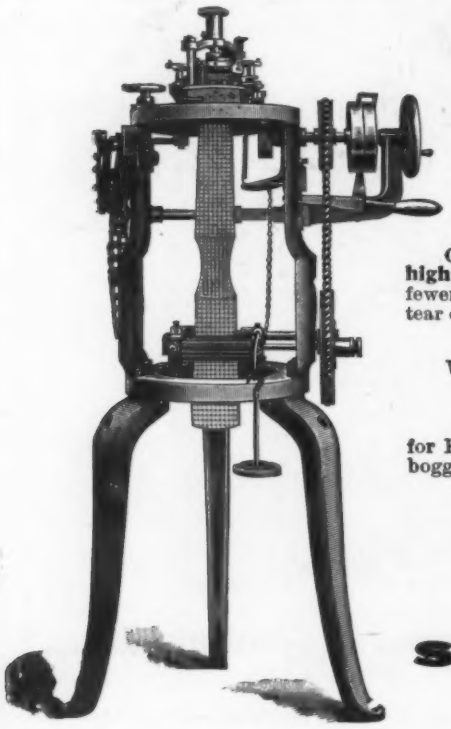
Pawtucket, R. I.

PHILADELPHIA OFFICE,
101 North Sixth St.



Can be furnished as a bench machine



High Speed Rib Knitting Machinery.

Our latest model machinery has been designed to run at very high speed, giving large production. This is accomplished with fewer seconds, less breakage of needles, less jar and wear and tear on machines than has been customary at lower speeds.

We also make Special

STRIPING AND DESIGNING MACHINES

for Fancy Golf Stockings, Bathing Suits, Sweaters, Toques, Toboggan Caps, Skirts, etc.

Our Machinery gives large production at low cost and enables manufacturers to meet the market always and make a profit.

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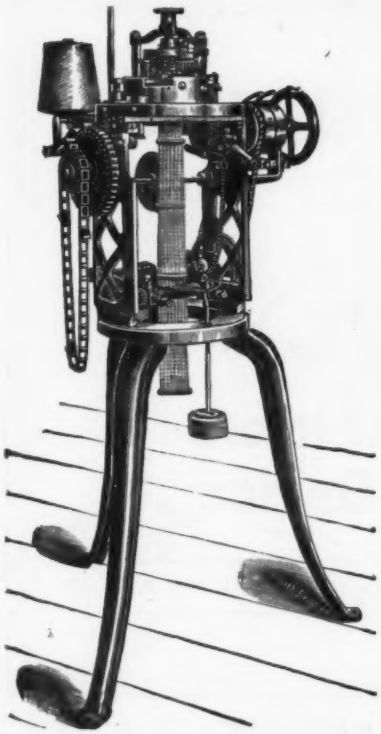
LITTLE FALLS, N. Y.



H. Brinton & Co.

213-215 Race Street, Philadelphia, Pa.

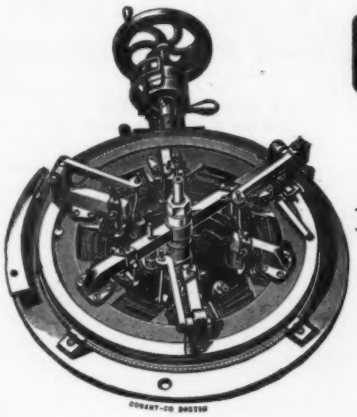
BUILDERS OF

Knitting Machinery

For HOSIERY and UNDERWEAR.

Complete Estimates Furnished. Send for Particulars.

The cut shows our Improved Automatic Ribber with Welt and Slack Course for Half Hose, Tops and Ribbed Legs.

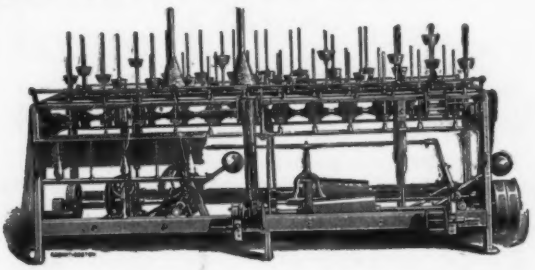


CIRCULAR KNITTING MACHINES

Either plain or full automatic, with stop motions complete. 4 to 24 feeds for

RIBBED UNDERWEAR

Automatic Racking and Striping Machines for Sweaters, Cardigans, Collarettes, Cuffs and Anklets.



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ABEL WINDERS, SEAMERS and LOOPERS.

LEIGHTON MACHINE CO., - Manchester, N. H.

EXCELSIOR KNITTING MACHINE MFG. CO.

Meadow and Washington Streets

ALLENTOWN, PENNA.

BUILDERS OF

Full Automatic Knitters

With or without **Transferring Device**

ALL SIZES AND GAUGES, 2 1-4 INCH TO 4 INCH

"Acme" and "Hemphill"

SEAMLESS HOSIERY

Knitting Machines

built by

Mayo Knitting Machine & Needle Company

Franklin, N. H.

Answer all purposes in the *most reliable*, *up-to-date*, and *economical* manner. Write us for full particulars.

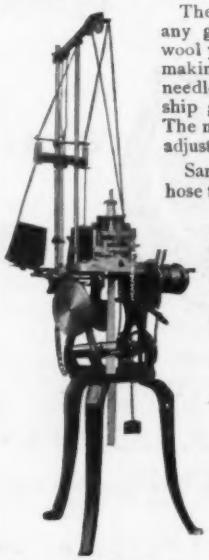
Manufacturers like our Latch Needles

because we make a superior grade of needles.

Philadelphia Office, Knickerbocker Bldg.

Use the Ruth

Ribber and Stop Motion



The Ruth Ribber will produce any gauge goods from cotton or wool yarn at a high speed without making bad work or breaking needles. Material and workmanship guaranteed to be first-class. The machine is easy to operate and adjust.

Samples of 240 needle gauze half hose tops furnished by request.

Meet us in Philadelphia at the Exhibition of the National Association of Hosiery Manufacturers of Knit Goods, May 11-16, 1908, or write us now.

Many mills are pleased with our machine and we are sure we can please you.

Give us a trial. Write to-day.

RUTH

Machine Co.

YORK, PA.

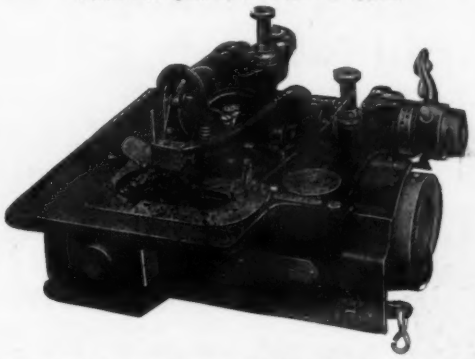
G. W. RUTH, Manager

AN INSTRUMENT OF PRECISION!

"OVERLOCK" MACHINE

(Trade Mark) (Pat. April 5, 1892)

Patent twice upheld by U. S. Court of Appeals



Trade Mark

WILLCOX & GIBBS SEWING MACH. CO. NEW YORK.

Business Established in 1859.

For TRIMMING, SEAMING (or Hemming or Overedging) and COVERING Raw Edges of Knit Underwear and Hosiery in **ONE OPERATION** at **3000 Perfect Stitches per Minute.**

WILLCOX & GIBBS SEWING MACHINE CO.,

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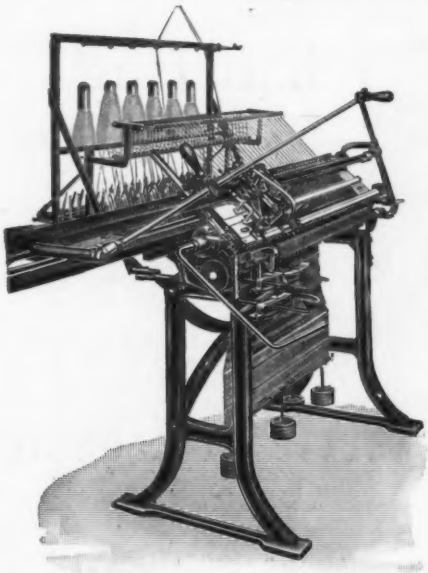
LONDON PARIS MILAN DRESDEN BRUSSELS NOTTINGHAM

WALTER & CO., Limited

Mühlhausen i/Thür, Germany.



SPECIAL MANUFACTURERS OF

Knitting and Winding Machines

for hand and power driving, of best quality and perfect construction.

Specialty: Jacquard Machines

for hand and power driving for manufacturing of sweaters and every possible fancy article of that nature.

PRICE LIST AND SAMPLE ON APPLICATION

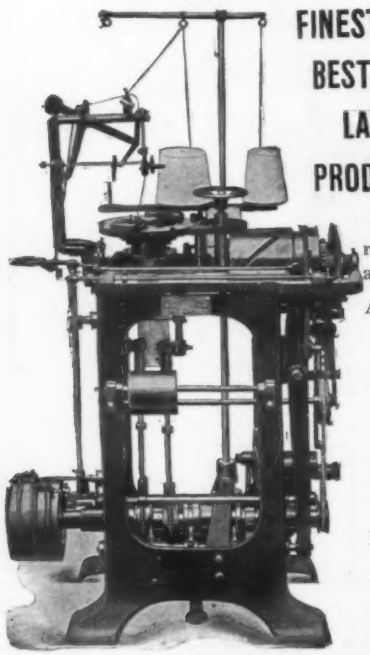
American Representative

E. W. S. JASPER,

120-122 Liberty St., New York.

"NATIONAL"

Stands for



FINEST GAUGES
BEST FABRIC
LARGEST
PRODUCT ON

Greatest Variety of Laces and Novelties.

Allautomatic.

Lowest Cost for Operating

Also

Rib Knitting Machinery, Overedge, Crochet and Shell Stitch.

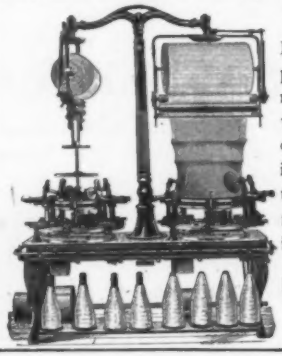
NATIONAL AUTOMATIC KNITTER CO.

728 Cherry Street, PHILADELPHIA, PA.

We are the Oldest Manufacturers

of this Design of Spring Needle Knitting Machine in this Country

40 years' experience



Do not be misled by people who became manufacturers in 1903 without any previous experience who are trying to represent that they are the oldest manufacturers. Investigate.

Robt. W. Gormly & Co.

Troy, N. Y.

The New Boss Seamless Knitter

Do you want the biggest production with the least menders, for the least money? If so, write to the Boss Knitting Machine Works for their circular with full directions. There is no cylinder to be handled. We use only one cylinder and transfer device for half hose or ladies' hose. This machine beats them all. Has no equal for simplicity and durability. Makes 300 revolutions per minute. Built in sizes from 2¼ to 5½; from 40 to 224 needles. Automatic in heel and toe. It is the strongest built knitter on earth.

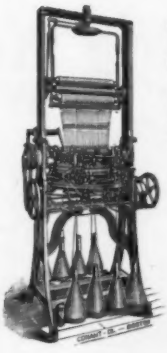
Send for prices and particulars.

THE BOSS KNITTING MACHINE WORKS,
Cor. Elm and Reed Sts., Reading, Pa.

CHARLES COOPER,

BENNINGTON, VERMONT,

MANUFACTURER OF



Knitting Machinery

Flat and Circular Rib, both Spring and Latch Needle, Plain Circular Machines, Lead or Trick Cylinder, **Spring Needle Cylinder Rib-Top Machines** for making Cuffs, Drawer Bottoms and Shirt Borders.

Spring and Latch Knitting Needles,
Burr Wheels,
Burr Blades, Sinkers, Jacks, etc.

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STANDARD MACHINES FOR HOSIERY MAKING.

The STANDARD F, with attachments, can make any and all of these fabrics:

PLAIN GOODS
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THREE COLOR STRIPES
TIPPED HEEL AND TOE
WHITE FOOT
CHANCED HEEL AND TOE
CARTER TOP
LOOPERS SLACK COURSE

Most Stockings--Best Fabrics--Longest Life

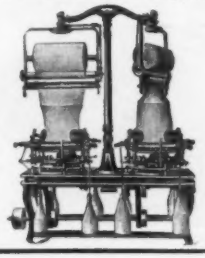
STANDARD MACHINE COMPANY,
OFFICE AND SHOW ROOMS
510 Ludlow St. Philadelphia

We Are the Oldest Manufacturers
IN THE WESTERN HEMISPHERE
Of Circular Spring Needle Loop-Wheel Knitting Machinery.

TOMPKINS BROS. CO., Troy, N.Y.

We submit the following extract from the sworn testimony of R. W. Gormly, in U. S. Circuit Court, Northern District of New York, in equity, No. 6764:

Cross Question 123. How long have you been a manufacturer of knitting machines? Answer. I started in this business about the middle of May, 1900.



Tompkins Knitter

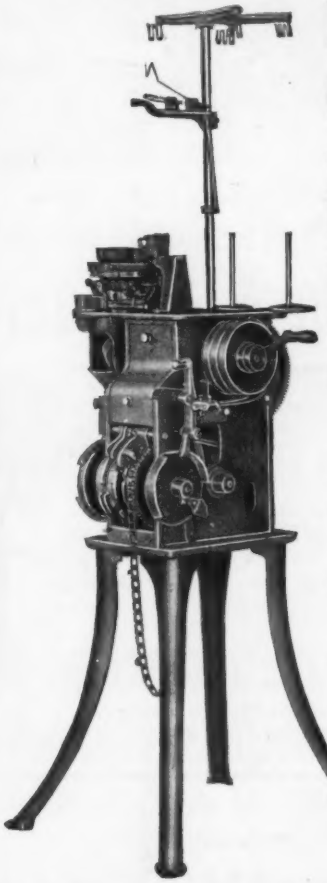
This design was adopted in 1875.

BUSINESS ESTABLISHED in 1846, before ROBERT W. GORMLY Was born, according to his testimony in the case above cited.

"THE BANNER"
Hemphill's Latest

A FULL AUTOMATIC MACHINE

Specially adapted to



Plaited Goods and **String Work** also **High Splice** and **Double Sole**

Largest Production

More Yarn Changes

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Produces a Superior Quality of Work.

MANUFACTURED BY THE

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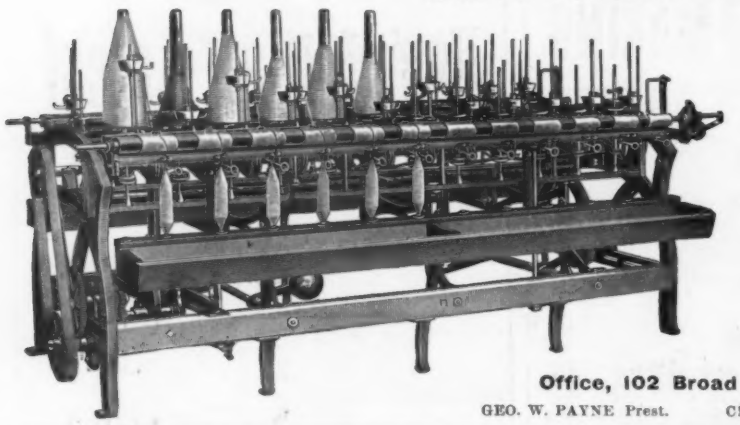
131 Clay Street, PAWTUCKET, R. I.

OVER 1,900 PAYNE WINDERS IN USE

By Hosiery Manufacturers,
Wind for Cop, Skein or Bobbin.



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Upright Spoolers,

To Spool from Cop, Skein or Bobbin.

Doubling Spoolers for doubling 2, 3, or more ends into one.

Upright Quillers, Quill from Cop, Skein or Bobbin.

Ring Dresser, Spooler and Reel Spindles, Cop Skewers, Warp, Spool, Spooler, Guides, Bolsters and Stops Made and Repaired at Short Notice.

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[Est. 1865. Inc. 1903.]

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Full Automatic
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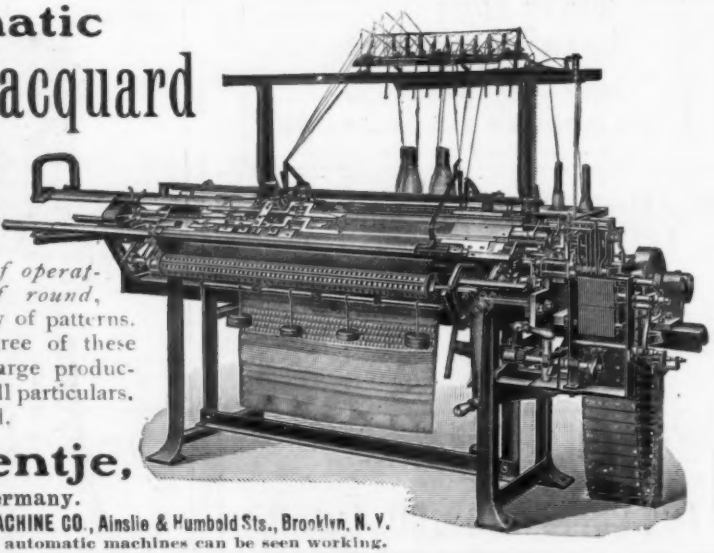

for high-grade sweaters, jerseys, etc. Latest improvements

Recognized as the best in the market. With Jacquard attachment allowing *change of operating mechanism every half round*, therefore unrivaled in variety of patterns. One operator attends to three of these machines. High speed. Large production. Ask for samples and full particulars. State gauge and size you need.

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Where all kinds of our hand and automatic machines can be seen working.

HEPWORTH & CO.'S

Patent Single-Stitch

LOOPING MACHINE.

Needle working from the inside, avoiding the breaking of needles and points and picking up the metal.

Single and Double Stitch, or Both Combined.

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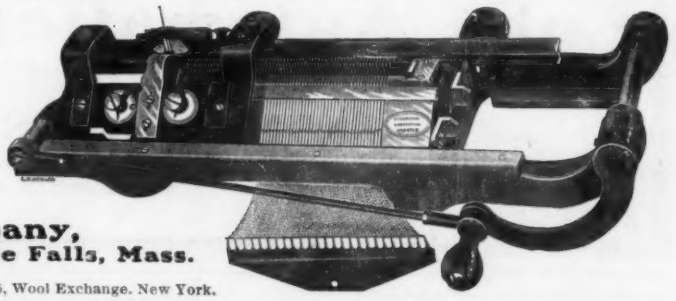
Original and Still the Best.

Most widely used; being operated in every civilized country in the world. For description, prices, etc., see catalogue.

Circular Machines, Rib Top and Seaming Machines.



Lamb Knitting Machine Company,

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Both single and double Stitch.

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Patentees and Manufacturers of the only

Practical Automatic

Power Top Cutting Machine

Will cut anything with a Welt

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Full Automatic Knitter

FOR ALL KINDS AND GAUGES OF SEAMLESS HOSIERY.
RANGE ON HALF HOSE AND LADIES FROM 260 NEEDLES DOWN.

3-4 AUTOMATIC KNITTER

With Lace Effects.

Exclusive rights to BROWN'S LACE ATTACHMENT.

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Established 1870.—Incorporated 1890.

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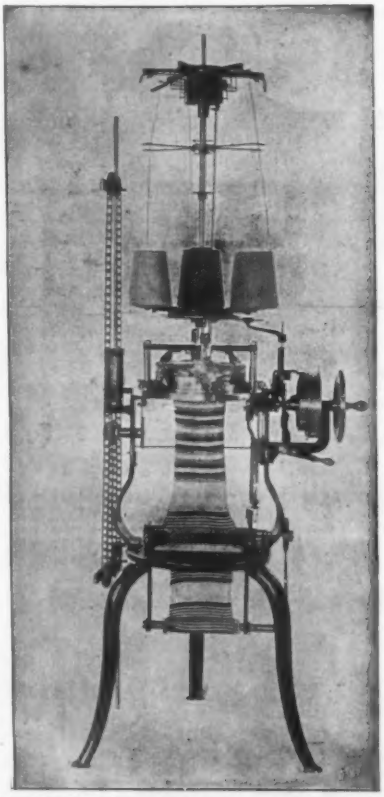
Spring and Latch Needle Machines for both rib and plain work, producing a great variety of fabrics. Patent removable hardened Wing Burr Wheels.



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Our Knit Fabric Cutter

will cut from the roll, knit fabric into any length from 10" to 40" at the rate of 100 pieces a minute. The lengths are accurate, the waste is a minimum, the labor unskilled.

We also make a Slitter

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Fast Black Dyeing, Finishing, Etc.

Also Resolvent Compound, Olive Oil, Soluble Oil and Cream Softener.

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TRY OUR "SUPERIOR" OR SUNKEN RIVET-HEAD NEEDLES

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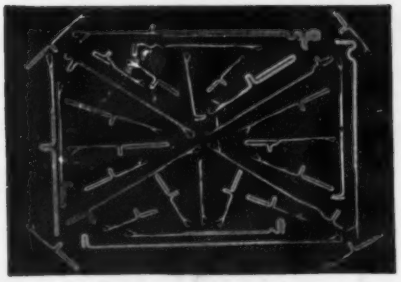

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Special Needles made to order.

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4,000 H. P., 72 ft. head, arranged to drive generator and a single turbine to drive exciter. Five settings built for the Hudson River Water Power Company's Spier Falls plant and 14 pairs 51 inch for their plant at Mechanicsville, N. Y.

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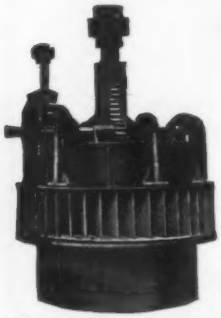

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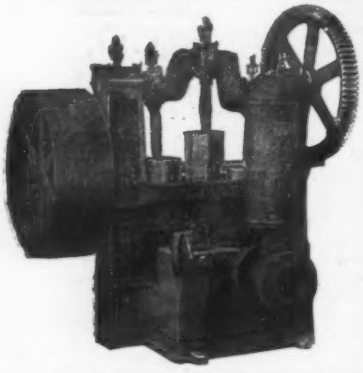

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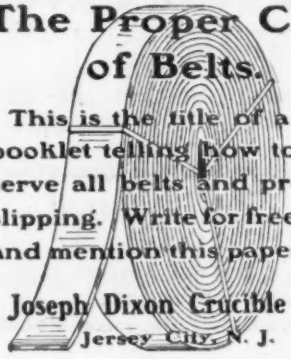

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for the Textile Mill includes provision for adequate ventilation.

This is insured, together with a comfortable temperature, by the "ABC" Fan System.

Full information upon request.

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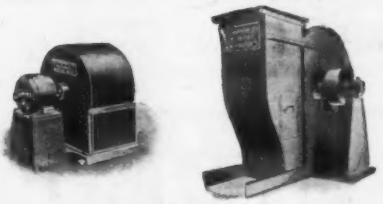

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For conveying cotton, wool, rags, hair, etc.

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A necessary article in every Textile Mill
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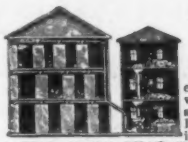

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For the handling of wool and cotton stock, rags, excelsior, jute and all kinds of fibrous material, wet or dry. Also spool elevators, steam heating and ventilating, and mill work generally. Blower and fan work a specialty. This conveyor is patented. Beware of infringement.

SATISFACTION GUARANTEED Patented Oct. 15, 1889.

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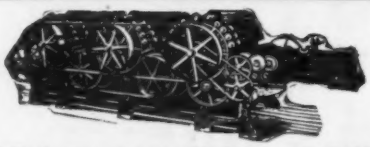

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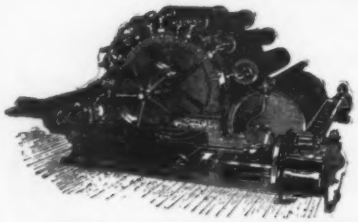
For reducing to Fibre Cotton and Wool Waste, Cloth Clippings, Etc.



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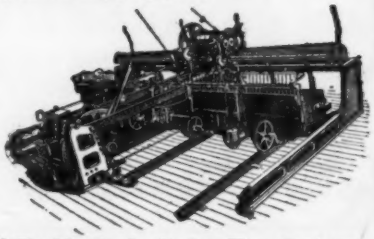

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Complete Equipment for Manufacturing Cotton Batting for All Purposes.

Special Carding and Spinning Machinery for manufacturing Yarn from such low grade stock as Mill Sweepings, Linters, Etc.

We reclothe or furnish new Metallic Toothed Cylinders and Rolls and relagg or furnish new Cylinders for any make of Rag Picker.

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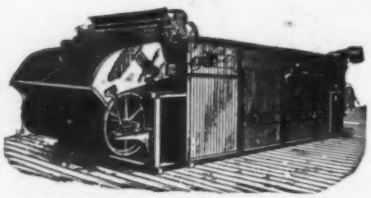
For Cotton Stock, Wool Stock, Rags, Yarn, Cloth Underwear, Stockings, etc.



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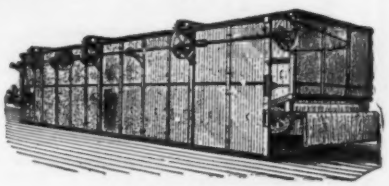

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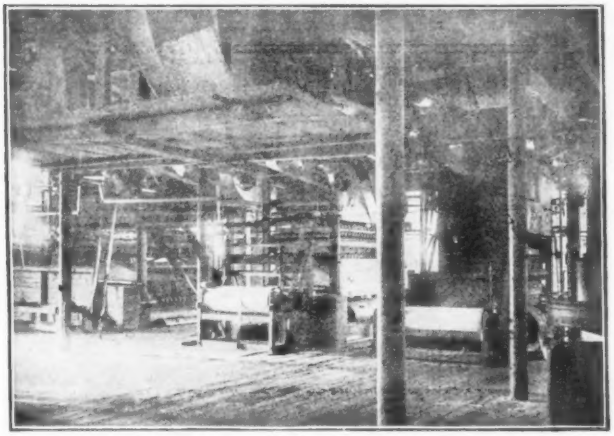
Economy in first cost, power and labor; improved service and increased output.

These are some of the advantages of the Cell Drier.



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for Finishing Cotton, Woolen, Worsted and Silk Fabrics.

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WATER TOWERS
IRON OR STEEL
for Fire Protection and Domestic Service.
Built in all sizes.
Write for catalogue.
Plans and prices cheerfully given.
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